

FINGER/TOE NAIL CLIPPER AND CATCHER

This invention relates generally to finger/toe nail clippers and, more particularly, provides a finger/toe nail clipper and catcher device which prevents nail clippings from scattering during use thereof and offers effective means for catching and retaining the accumulated nail clippings as well as providing improved actuating lever means therefor.

Conventional finger/toe nail clipper devices generally have a pair of elongate arms arranged overlying and co-extensive. The upper arm has limited resilience while the lower arm is rigid. The longitudinal sides of the device generally are open. The rear ends of the arms are secured. The front ends of the arms terminate in jaw formations, each jaw formation terminating in cutting edges spaced apart slightly. An actuating lever is provided coupled to mounting means proximate the jaw formations.

The conventional mounting means for the actuating lever consist of a mounting pin having a head at one end and a passage at the other end. Each arm has a hole adjacent to the jaw area. These holes are aligned. The mounting pin passes through the aligned holes. The mounting pin, when installed conventionally, partially blocks passage between the jaws of the clipper, limiting the entry of the finger/toe nail. Also, the mounting pin obstructs the flow of the nail clippings toward the interior area of the clipper, resulting in the uncontrolled dispersal of the finger/toe nail clippings common to the use of conventional finger/toe nail clipper devices.

While the prior art has attempted to address these results through various proposed structures, none of the proposed structures have been totally successful in controlling the scattering of the finger/toe nail clippings. Also, the removal of clippings from the

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storage areas of prior finger/toe nail clippers is difficult.

In order to provided further background information so that the invention may be completely understood and appreciated in its proper context, reference is made to a
5 number of prior art patents as follows:

U.S. Patent Nos. 5,072,511; 5,150,521; 4,640,011; 5,195,544; 4,984,366; 4,966,771; 5,131,146; 4,614,031; 4,419,134; 4,574,475; and, 5,261,160.

10 The Ro U.S. Pat.No. 5,072,511 discloses an attempt to deal with these difficulties. The Ro structure involves a recess formed in the side walls to facilitate controlled catching and discharge of the clippings. While the structure does contain many clippings within the chamber
15 formed by the side walls, there are open slots between the side walls and jaw formations that permit escape of some of the clippings that have rebounded from the interior surfaces of the jaws and the mounting pin, leaving a retrieval problem which was sought to be avoided. Also,
20 the Ro clipper appears to require considerable shaking to discharge any clippings jammed in the interior, rear narrow portion of the clipper.

The U.S. Pat. No. 5,150,521 to Han provides a separate nail collecting box into which the nail clipper
25 is slipped. A cover frictionally is engaged over a conventional clipper to retain the clippings. The Han solution requires a two-piece unit that is likely to be expensive to manufacture and difficult to separate in order to dispose of the accumulated clippings.

30 The Gamble U.S. Pat.No. 4,640,011 describes a hinged retainer with side walls that close off the side openings of the clipper. When the retainer section is dropped, the nail clippings fall out. However, to remove the nail
35 clippings in the rear area of the interior chamber, the retainer must still be removed from the conventional nail clipper. Shaking still is required to dispose of the clippings caught in the rear area of the portion of the

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clipper.

U.S. Pat.No. 5,195,544 illustrates a sheath into which the conventional nail clipper is lodged. The sheath must be removed from the conventional clipper in order to discharge the accumulated clippings within the chamber. An additional element for collection and the separation of such element to remove the clippings is required, making it burdensome for the user.

U.S. Pat.No. 4,984,366 demonstrates another slip-on device whereby a tubular element is fitted onto the conventional clipper. However, the tube does not extend to the mouth of the clipper, still allowing escape of nail clippings deflected from the mounting pin and the interior of the blades out of the side slots.

The Williams U.S.Pat.No. 4,996,771 shows a clipper with a retainer and catching mechanism that catches nail clippings in the forward position and empties the clippings when in the rearward position. Random nail clippings may still deflect from the mounting pin.

The Leininger U.S.Pat.No. 5,131,146 exhibits a receptacle that has a rear sleeve which receives the rear part of the finger/nail clipper as well as a front shield that receives the front portion of said finger/nail clipper and accommodates the nail clippings resulting from the use of the clipper device. The front shield is attached to the rear sleeve by a "live" hinge that allows the front sleeve to be pulled away from the body of the clipper device about the hinge, enabling release of the clippings collected within the interior of the device. The interior side walls of the front shield engage to the lower arm of the clipper device. While the Leininger attachment may reduce the amount of scattered clippings, there is still a problem of uncontrolled dispersal with a portion of the clippings since they may, again, deflect from the mounting pin and out the open mouth of the cutting edges. Moreover, the Leininger shield and sleeve unit is a plastic molded product that fits a particular

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size clipper device, necessitating several sizes of the shield/sleeve unit. Also, it is likely that the plastic molded receptacle will not last an adequate useful life.

5 The Chen U.S. Patent No. 4,614,031 divulges a nail clipper with a lower stationary base and side walls that house the clippings within the clipper device. However, there are side slots between the jaw formations and the side walls of the base where random nail clippings may escape.

10 The Bumbera U.S. Pat. No. 4,419,134 evidences an attempt to eliminate the deflection problem of the mounting pin by mounting the actuating lever by means at the end of the actuating lever hooked on the band circled around the lower and upper arms of the clipper. The
15 Bumbera structure has open side walls, which still allows the scattered escape of nail clippings. However, even if the Bumbera design had side walls, the band would prevent the front portion of the clipper to be shielded, resulting in incomplete protection against scattered escape.

20 U.S. Pat. 4,574,475 to Lee presents side walls extending from the jaw area and terminating at the rear area of the device. However, the Lee structure allows for nail clippings to be caught in the narrowed rear portion of the device, resulting in difficult removal of the
25 clippings. Also, forward opening end notches or slots in the side walls allow the passage of random nail clippings.

The Castagna U.S. Pat. No. 5,261,160 also introduces side walls to shield the length of the nail clipper. However, the conventional mounting pin still presents the
30 problem of deflection.

Whatever the precise merits, features and advantages of the above cited references, none of them achieves or fulfills the long sought benefits achieved by the invention, including the provision of greater protection
35 against the dispersal of nail clippings by complete enclosure of the interior during use; elimination of deflection of clippings off of the conventional mounting

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pin by providing alternate mounting means for the actuating lever; provision of means to allow various nails to be clipped without sacrificing complete enclosure of the interior during use; provision of more controlled means for removing the accumulated nail clippings by a simple mechanism without any separate attachment units; to provide a clipper device which is capable of simpler manufacture and operation than has been heretofore available; and the provision of a clipper catcher device as a single unit free from the need for separate units as suggested by the prior art.

Accordingly, the invention provides a finger/toe nail clipper and catcher device including elongate upper and lower arms arranged spaced in overlying arrangement and having first ends secured together and opposite ends terminating in spaced facing jaw formations, at least one of said arms having vertical side walls unitary therewith along the longitudinal edges thereof shielding the longitudinal sides of said overlying upper and lower arms, said jaw formations having blade sections terminating in cutting edges, an actuating lever associated with said device for selectively bearing against one of said arms for forcibly effecting engagement of said cutting edges to sever a finger/toe nail introduced between said jaw formations and means for disposing of the resulting nail clippings; characterized by mounting means comprising passage means formed on said side-walls proximate said jaw formations and projection means associated with said actuating lever seatable in said passage means and enabling unobstructed passage of the finger/toe nails and the nail cuttings therefrom interior of said device during use of said device as well as maintaining the positional stability of said actuating lever.

The invention further provides the blade sections of said jaw formations characterized by angular facing side sections also terminating in cutting edges and defining movable slots for receiving variable sized finger/toe

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nails between said jaw formations.

The invention additionally is characterized in that the interior of said arms, side walls and said jaw formations completely enclose the interior of said device when the cutting edges of the jaw formations are engaged.

The invention further provides a finger/toe nail clipper device characterized by the provision of selectively accessible disposal means for controllably discarding accumulated nail clippings from the interior thereof including means deflecting the nail clippings to the exterior of said device and selectively operable hatch for blocking egress of said nail clippings.

The invention further is characterized in that said mounting means for said actuating lever of the finger/toe nail clipper and catcher device is provided with means for maintaining the stability and positioning thereof during use thereof.

The preferred embodiments of this invention will now be described by way of examples, with reference to the drawings which accompany this specification as follows:

FIGURE 1 is a perspective view of finger/toe nail clipper and catcher in accordance with the invention, the actuating lever of which is illustrated placed in active position with the disposal hatch extended outward;

FIGURE 2 is a top view of the finger/toe nail clipper illustrated in FIGURE 1, the disposal hatch shown in phantom outline;

FIGURE 3 is a perspective view of the actuating lever illustrated in FIGURE 1;

FIGURE 4 is a side elevational view of the actuating lever in its active position illustrated in FIGURE 3; ;

FIGURE 5 is a side elevational view of the actuating lever of FIGURE 3 and is illustrated in its inactive position, rotated 180 degrees about the rivet which fastens the rotating portion of said actuating lever relative to the front plate thereof;

FIGURE 6 is a side elevational view of the finger/toe

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nail clipper and catcher illustrated in FIGURE 1 but showing a modified deflection disposal means in phantom outline;

5 FIGURE 7 is a top view of the finger/toe nail clipper and catcher of FIGURE 1 but showing the modified deflection disposal means illustrated in FIGURE 6 shown in phantom outline with the actuating lever and upper arm thereof deleted;

10 FIGURE 8 is perspective view of a modified finger/toe clipper and catcher of FIGURE 1, particularly having a modified actuating lever mounted thereto by rotational disc means;

FIGURE 9 is a top view of the modified finger/toe nail clipper and catcher illustrated in FIGURE 8;

15 FIGURE 10 is a fragmentary side elevational view of the modified finger/toe nail clipper and catcher of FIGURE 8, the base of the actuating lever, as well as the upper and lower arms, being shown in phantom outline;

20 FIGURE 11 is a perspective view of the modified actuating lever and rotational disc illustrated in FIGURE 8;

FIGURE 12 is a fragmentary perspective view of the actuating lever and rotational disc of FIGURE 11;

25 FIGURE 13 is a plan representation of the rotational disc illustrated in FIGURES 8 - 12;

FIGURE 14 is a fragmentary side elevational detail of an additional modified embodiment of the invention showing the actuating lever thereof in active position

30 FIGURE 15 is a side elevational view of another modified finger/toe nail clipper and catcher device;, the actuating lever thereof being shown in active position, the jaw formations thereof open;

35 FIGURE 16 is a side elevational view of the finger/toe nail clipper and catcher device of FIGURE 15, the actuating lever thereof being shown in inactive position;

FIGURE 17 is a fragmentary elevational detail of the

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finger/toe nail clipper and catcher device of FIGURE 14 showing the actuating lever thereof in inactive position.

FIGURE 18 is a fragmentary top view illustrating a detail of the finger/toe nail clipper and catcher device
5 of FIGURE 17;

FIGURE 19 is a top view of the finger/toe nail clipper and catcher of FIGURE 16 with the actuating lever and disposal means thereof shown in phantom outline;

FIGURE 20 is a perspective view of the actuating
10 lever of the finger/toe clipper and catcher illustrated in FIGURE 15;

FIGURE 21 is a perspective view of the cross-bar portion of the actuating lever of the finger/toe nail clipper illustrated in FIGURE 20;

15 FIGURE 22 is a perspective view of the finger/toe nail clipper of FIGURE 15 illustrated in the absence of the actuating lever thereof and showing the disposal hatch extended outwardly;and,

FIGURE 23 is a perspective detail of the embodiment
20 of the invention illustrated in FIGURES 14, 17 and 18, showing a further modified jaw formation.

Referring to the drawings, in FIGURE 1, a finger/toe nail clipper and catcher device in accordance with the invention is designated generally by reference character
25 10 and has an elongate upper arm 14 and an elongate lower arm 2 spaced in overlying arrangement with their longitudinal edges substantially parallel. The upper arm 14 bends downward at 14c at a location proximate the fastened end 8 of the device 10. The finger/toe clipper
30 and catcher 10 has vertical opposite side-walls 4 and 6 unitary with said outer longitudinal edges of said lower arm 2 from a location proximate the fastened end 8 of the device 10 to the beginning of the jaw formation 4e of the lower arm 2. The side-walls shield the open longitudinal
35 sides defined by the spaced upper and lower arms 14 and 2.

The ends 14b and 2b are tightly secured together in superposed condition by a fastener, such as rivet 22. .

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The opposite ends of elongate upper arm 14 and elongate lower arm 2 terminate in spaced facing jaw formations 14a and 2a. Jaw formations 14a and 2a have concave center sections 26 and 28 and angular side sections 36 and 38 on either side of concave center sections 26 and 28. The concave center sections 26, 28 of jaw formations 14a and 2a have tapered blades 32, 34 which end in tapered blades 32, 34 that terminate in sharpened cutting edges 32a and 34a. The angular sections 36, 38 also terminate in sharpened cutting edges 42a and 44a. The angular sections 36, 38 extend to the adjacent side-walls 4, 6.

The side-walls 4 and 6 have diagonal edges 41 that gradually extend upward and flatten out at 4c proximate the jaw formations 14a and 2a proximate the jaw formations 14a and 2a. The front edge 4b of each side-wall dips down and terminates in a hook-like socket 46.

An interior chamber 24 of the device 10 is isolated by the interior facing surfaces of the lower arm 2, upper arm 14, side-walls 4 and 6, jaw formations 14a and 2a and blades 32, 34 and 42a, 44a when the cutting edges 34a, 32a, 42a and 44a bear against each other to cut a finger/toe nail. The interior chamber 24 is completely enclosed, preventing uncontrolled dispersal of the finger/toe clippings exterior of the device 10.

Attention is directed to the omission of the mounting pin found in the conventional finger/toe nail clipper. Absence of such mounting pin eliminates problems encountered with the conventional finger/nail clipper, in that there is no structure to obstruct the smooth entry of various sized finger/toe nails between the jaw formations and that there is no structure in the path of the finger/toe clippings that could deflect said clippings back to the interior of the closed jaws formations so that they rebound randomly, say through the side openings common with many prior art finger nail clippers, and are randomly scattered to the exterior of the device 10.

Reference is directed to FIGURES 3 through 5 in which

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are illustrated different views of the preferred actuating lever provided by the invention and designated by reference character 16. The actuator lever 16 comprises a rotating portion 17 and a planar front plate 52 which only
5 can move vertically. Portion 17 is generally flat and is bent at 17f, continuing in an elongate planar section 17b which functions as the grasping end 17b of the actuator lever 16. The rotating portion 17 is bent at 17a to form continuing elongate planar angled section 17c. Section
10 17c is provided with an opening 17d to accommodate fastening rivet 18. The bend at 17a forms a heel formation 17e of the actuating lever 16. The bend at 17a is at an angle so that the end 17g of the continuing elongate section 17c is parallel with the bend at 17f when
15 the actuating lever is in its inactive position (shown in FIGURE 5).

Front plate 52 functions as the connector which forms the mounting means for the actuating lever 16 to the side walls 4 and 6 of the device 10. The front plate 52 bends
20 at 52a forming angled planar plate 52h so as to accommodate the rivet 18. An opening 52f is formed in the angled planar front plate 52h so as to accommodate the rivet 18, which tightly fastens the rotating portion 17 of the actuating lever 16 to said front plate 52 through
25 openings 17d and 52f, the engaged portions 17c and 52h providing the actuating lever 16 with stability and support. However, the rivet 18 still permits rotation of the rotating portion 17 360 degrees enabling alternating between the active position illustrated in FIGURE 4 and
30 the inactive position illustrated in FIGURE 5.

The front plate 52 has oppositely, outwardly protruding side ends 52b and 52e. The side ends 52b and 52e ride within the sockets 46 formed in the side walls 4 and 6, enabling the actuating lever 16 to be mounted to
35 the finger/toe nail clipper and catcher device 10.

When the actuating lever 16 is in its active position (FIGURES 1, 3 and 4), the rotating portion 17 of the

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actuating lever 16 slopes upward, away from the elongate upper arm 14 with the heel formation 17e against the upper surface of said arm 14. In the active condition of the actuating lever 16, the front area 4a and 6a of the side walls 4 and 6 define side barriers which act as means prevent the actuating lever 16 from slipping sideways during use of the device 10, effectively positioning and stabilizing said actuating lever 16 during use. During use of the device 10, the grasping end 17b is pressed toward the upper arm 14. The heel formation 17e bears against the lower jaw formation 2a so that the cutting edges 32a and 34a and 42a and 44a engage against the finger/toe nail introduced between the jaw formations 14a and 2a, cutting the nail. When the device 10 is in the process of cutting the nail, the interior is completely isolated.

In order for the actuating lever 16 to alternate between active and inactive positions, the grasping end 17b must be lifted upward and then rotated 180 degrees around the rivet 18. When the actuating lever 16 is in its inactive position (FIGURE 5), the rotating portion 17 of the actuating lever 16 is rotated 180 degrees from its active position. When the actuating lever 16 is in its inactive condition, the rotating portion 17 slopes downward, toward the upper surface of the elongate upper arm 14 with the heel formation 17e pointing upward instead of bearing against the upper surface of said upper arm 14.

In FIGURE 1, the finger/toe nail clipper and catcher 10 is illustrated with the disposal hatch 12 mounted to the undersurface of the lower arm 2 by the rivet 22, which also functions to fasten the elongate upper and lower arms 14, 2 together, and the disposal hatch 12 being illustrated extended sideways about the rivet 22 away from the body of the device 10 in FIGURE 1. Referring now to FIGURE 2, in the "cutting" stage, the disposal hatch 12 (shown in phantom outline in the undersurface of the lower arm 2) is closed, covering the opening 2c formed in the lower arm 2,

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through which the accumulated nail clippings may be released. When the user is ready to dispose of the accumulated nail clippings collected within the chamber 24, the disposal hatch may be opened by swinging the hatch 12 to the side, allowing controlled discarding the accumulated nail clippings.

Referring to FIGURES 6 and 7, a modified embodiment of the finger/nail clipper and catcher device according to the invention is illustrated and designated generally by reference character 20. In particular, the device 20 provides modified disposal means for nail clippings. In FIGURE 6, the phantom outlines reveal the interior chamber 24 and deflector 13 located on the interior surface of the lower arm 2. In FIGURE 7, the phantom outlines reveal the opening 15 in the lower arm 2. The angled deflector 13 provides controlled means for disposal of the nail clippings. The absence of the conventional mounting pin permits the unobstructed entry of the nail clippings. However, instead of retaining the nail clippings for later disposal, the disposal means provided in the device 20 enables one to hold the device 20 above any container or other area to receive the clippings. The deflector 13 will deflect the nail clippings, which will fall downwardly, through the opening 15 to the exterior of the device 20 so as to effect controlled disposal of the nail clippings. The deflector 13 does not extend upward all the way to the inner surface of the upper arm 14. It is sufficient that the deflector 13 extend upward a sufficient distance without preventing the resilience of upper arm, allowing the cutting edges of the jaw formations 14a and 2a to engage.

In FIGURES 8 - 12 a further modified embodiment of the finger/toe nail clipper and catcher device is illustrated and designated by reference character 30. The modified device 30 includes a modified actuating lever and mounting means therefor. The modified actuating lever designated generally by reference character 60, is

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generally flat with a grasping end 60e and a mounting base 60b. The longitudinal edges of actuating lever 60 are substantially parallel until said edges indent inward at 60f, then continuing in a substantially parallel direction to the mounting base 60b. The base 60b of the actuating lever 60 has a heel formation 60g and a horizontal bore 60c that extends through the base 60b. The lower surface of the base 60b engages the upper surface of the upper arm 14. A rotational disc 62 is formed as a planar member which may be circular or may be oval in configuration (see FIGURE 13) and has an axial passage 78 formed there-through, a pair of oppositely facing mounting ears 64 and 76 extending vertically from the edges 82, 84 of the axial passage 78 formed in the disc 62. The mounting ears 64 and 76 carry openings 66. Base 60b is dimensioned so as to be received within the axial passage 78 between the ears 64 and 76 and arranged with the bore 60c aligned with the openings 66 and an elongate pin or rod 67, the ends thereof are passed therethrough to fasten the actuating lever 60 to the rotational disc 62.

The scroll-like (hook-like) sockets 46 formed in the side-walls 4 and 6 as shown in FIGURES 1, are replaced by longitudinal slots 74 (preferentially close-ended) formed in the side-walls 4 and 6 as illustrated in FIGURES 8-10. Referring to FIGURES 8-10, the upper edges 4c of the portions of side-walls 4 and 6 that extend above the upper surface of the elongate arm 14 are indented diagonally at 70, continuing in a longitudinal direction and angle outward at 72 proximate the jaw formation 14a. The angled and indented side-walls formed by 68, 70 and 72 that define the indented niches, have slots 74 carried by both side-walls 4 and 6, in which slots the rotational disc 62 rides and is capable of 360 degree rotation.

When the actuating lever 60 is in its active position as shown in FIGURES 8-10, the said lever 60 slopes upward, away from the elongate upper arm 14 with the heel formation 60g against the upper surface of the upper arm

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14. During use of the device 30, the grasping end 60e is pressed toward the upper arm 14. The mounted base 60b, via the heel formation 60g is forced to bear against the upper surface of the upper arm, forcing the upper-jaw formation 14a of the upper arm 14 against the lower jaw formation 2a. The heel formation 60g also functions to keep the actuating lever 60 in its active position by preventing the actuating lever 60 from falling toward the upper arm 14, thus complementing the positioning effect of the mounting ears 64 and 76.

In order to place the actuating lever 60 from its active condition to its inactive condition, the grasping end 60e of the actuating lever 60 is lifted so that the heel formation 60g no longer rests upon the upper surface of upper arm 14. The actuating lever 60 as mounted to the rotational disc 62, is rotated as a unit 180 degrees so that the upper surface of the active actuating lever 60 faces downward and becomes parallel to the upper arm 14, resting against the upper arm 14 until the device 30 is rotated back to its active condition. The rotational disc 62 rotates within the longitudinal slots 74.

Reference now is made to FIGURES 14-22 wherein a further modified embodiment of the invention is designated generally by reference character 100. The finger/toe nail clipper and catcher device 100 differs from the finger/toe nail clipper and catcher devices illustrated in FIGURES 1-13 in that the actuating lever 120 has been provided with modifications instituted in the means for mounting the modified actuating lever 120 to the device 100 and, modified means for positioning the actuating lever 120 and maintaining the stability of said actuating lever 120 has been provided. Device 100 further differs from the finger/toe nail clipper and catcher devices illustrated in FIGURES 1-13 in that the elongate upper and lower arms are planar from the jaw formations thereof through their opposite ends. Additionally, modified deflection means in the form of a trapezoidally configured block 196 has been

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substituted for the deflection means illustrated in the FIGURES 6,7 and 10. These modifications will be evident from the description to follow.

5 The device 100 has an elongate upper arm 176 and an elongate lower arm 174 extending in overlying spaced, generally coextensive relationship with the longitudinal edges thereof substantially parallel when the actuating lever 120 is mounted on the device 100. Device 120 is provided with vertical side-walls 146 and 148 along the
10 longitudinal edges of the lower arm 174, said side-walls 146 and 148 functioning to shield substantially the open sides of the device 100 from the beginning of the jaw formations 145 and 147 to a location proximate the rear of the device 100, said side-walls 146 and 148 tapering
15 downwardly as represented by reference characters 148a.

The device 100 has a rear block 196 which substantially increases the interior space between the arms 176 and 174 so that the capacity of the chamber 125 defined between said arms for accumulating the nail
20 clippings is increased. The rear block 196 is trapezoidal in configuration, the diagonal surface 178 facing downwardly and toward the interior of said chamber 125 defining a deflector. The rear end of the elongate upper arm 176 is secured tightly to the top surface of the rear
25 block 196 and the elongate lower arm 174 is secured to the opposite or bottom surface of said rear block 196 by a elongate rivet 182 and spot welded. The rivet 182 fastens the disposal hatch 172 to the undersurface of the lower arm 174 as well as fastening the upper arm 176 to the
30 upper surface of rear block 196 and the lower arm 174 to the lower surface of said rear block 196.

As shown particularly in FIGURE 22, the opposite ends of said elongate upper arm 176 and said elongate lower arm 174 terminate in the spaced upper jaw formation 145 and
35 lower jaw formation 147. Preferably, said upper and lower jaw formations 145 and 147 have upper and lower concave center blade sections 156 and 150, upper and lower angular

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side blade sections 155,157 and 152,154 on the sides of the concave center blade sections 156,150. Blade sections 156,150,155,157,154 and 152 each terminate in sharpened cutting edges.

5 Alternatively, as shown in FIGURE 23, the jaw formations 184,190 have upper and lower concave blade sections 186,192 that terminate in sharpened cutting edges 188 and 194. The lower concave blade section 192 is unitary with the lower arm 174 and portions of said side-
10 walls 146 and 148 as represented in FIGURE 23. The concave blade sections 186 and 192 extend from one side wall 146 to the other side wall 148 and are unusually wide, i.e. greater than 5/8ths inches (greater than 1.7 centimeters).

15 The side-walls 146 and 148 have coplanar upper longitudinal edges that dip at 158 and 159 defining notches 160 and 149. The notches 160 and 149 allow portions of the actuating lever 120 to extend below the uppermost point of the side-walls 146 and 148. The upper
20 longitudinal edges then continue, to extend diagonally upward and then flatten at 163 and 165. Proximate to the jaw formations 145 and 147, the upper longitudinal edges of each of said side-walls 146, 148 terminate in a hook-like formation 164 and 168 that defines a slot
25 (or socket) 166,169 defining passage means for mounting the actuating lever 120.

Referring to FIGURE 20, the modified actuating lever as an example, associated with the finger/toe nail clipper and catcher device 100, is designated by reference
30 character 120. Actuating lever 120 comprises an elongate planar bar section 123, side wings 126 and 128 and a cross bar 138. One end of said elongate section 123 is slightly bent to define grasping end 124 while the opposite end of said elongate section 123 defines a heel formation 130
35 that functions as cam means for said actuating lever 120. The side wings 126 and 128 extend vertically diagonally from portions of the longitudinal edges of the elongate

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section 123 proximate to the heel formation 130. The side wings 126 and 128 are parallel one to the other and terminate in rounded mounting ends 126b and 128b. The mounting ends 126b and 128b are provided with respectively aligned slots 134 and 136 adapted to receive the protruding ends 140, 142 respectively for seating the crossbar 138. The ends 140 and 142 when seated within the slots 134 and 136 preferably are flush with the exterior facing surfaces of the side walls 146 and 148. Elongate section 123 is indented to form shoulders 123a and 123b.

Again referring to FIGURES 20 and 21, the crossbar 138 has a planar (flat) elongate middle section 144 and opposite protruding ends 140 and 142. The elongate middle section is provided with a front longitudinal edge 144a and a rear longitudinal edge 144b. The protruding ends 140 and 142 seat within said slots (sockets) 166 and 169 formed in the side walls 146 and 148 as described above, enabling the actuating lever 120 to be mounted to the finger/toe nail clipper and catcher device 100

When the actuating lever 120 is in its active position, as shown in FIGURES 14 and 15, the elongate bar section 123 thereof slopes upward, away from the elongate upper arm 176. The heel formation 130 then is against the upper surface of the upper arm 176 proximate said notches 160 and 149. During the active position, the front edge 144a of said elongate middle section 144 of crossbar 138 rests against the upper surface of said upper arm 176. This construction keeps the actuating lever 120 from unintentionally flipping back to to any position other than the active position by providing some resistance. During use of the device 100, the grasping end 124 of the actuating lever 120 is pressed toward the upper arm 176, forcing the upper jaw formation 145 against the lower jaw formation 147 so that said jaw formations 145 and 147, i.e. the cutting edges thereof, engage the finger/toe nail introduced between said jaw formations 145 and 147, cutting the nail. When the device 100 is in the process

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of cutting a nail, the interior chamber is completely isolated.

In order for the actuating lever 120 to change from the active position to the inactive position, the grasping
5 end 124 must be lifted upward so that said crossbar 138 rotates within the sockets 166 and 169 of the side-walls 146 and 148 until is in its inactive position below the device. In the inactive position, the rear edge 144b of the middle section 144 of the crossbar 138 rests against
10 the upper surface of the upper arm 176, preventing said actuating lever 120 from swinging to any other position by providing resistance against said motion. When the actuating lever 120 is in its inactive position as represented in FIGURE 16, the elongate section 123 rests
15 against the lower surface of said lower arm 174 and said disposal hatch 172 while the side wings 126, 128 rest against the side-walls 146, 148. In order to move said actuating lever 120 from its inactive condition to its active condition, the grasping end 124 must be pulled away
20 from the body of the device 100 so that said crossbar 138 again rotates approximately 315 degrees within the sockets 166 and 169 of said side-walls 146, 148 until the heel formation 130 rests against said upper arm 176.

In FIGURE 22, the finger/toe nail clipper and
25 catching device 120 is illustrated with the disposal hatch 172 mounted to the undersurface of the lower arm 174 by the rivet 182, the disposal hatch 172 being extended sideways about the rivet 182 away from the body of the device 120. Referring to FIGURES 15, 17 and 19, during
30 the "active" stage, the disposal hatch 172 is closed, covering the opening 170 so that accumulated nail clippings may be retained. When the user is ready to dispose of the collected nail clippings, the disposal hatch may be opened by swinging the hatch 172 to the side,
35 allowing controlled discarding of the accumulated nail clippings. Phantom outlines reveal the angled deflecting face 178 of the rear block 196.



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CLAIMS

1. A finger/toe nail clipper and catcher device including elongate upper and lower arms 14,2 spaced in overlying arrangement; at least one 14 of said arms having limited resilience; said upper and lower arms having first ends 8 secured together and opposite ends terminating in spaced facing jaw formations 14a,2a; said jaw formations terminating in blade sections 32,34,42,44 having sharpened cutting edges 32a,34a,42a,44a; at least one of said arms having unitary vertical side-wall formations 4,6 along the longitudinal edges thereof shielding the longitudinal sides of said device along the open portions thereof, an actuating lever 16,60,120 associated with said device pivotably mountable thereon for selectively bearing against one of said arms for forcably effecting engagement of said cutting edges to sever a finger/toe nail introduced between said jaw formations and means for disposing of the resulting nail clippings; characterized by said mounting means comprising passage means 46,74 formed on the side-walls and projection means 52e,52b formed on said actuating lever seatable in said passage means and enabling unobstructed passage of the finger/toe nail cuttings interior of said device during use of said device as well as maintaining the positional stability of said actuating lever.
2. The finger/toe nail clipper and catcher device according to claim 1 characterized in that said blade sections include angular inwardly facing side sections terminating in said facing sharpened cutting edges, said side sections defining movable slots forming a variably spaced entry between said jaw formations for accommodating varied finger/toe nail sizes.
3. The finger/toe nail clipper and catcher device according to claim 1 characterized by said blade sections and the cutting edges thereof having side sections 36,38,42,44 extending to engage the adjacent side-walls 4,6 whereby defining a variably spaced entry into said

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device to accommodate varied finger/toe nail sizes.

4. The finger/toe nail clipper and catcher device according to claim 1 characterized in that said blade sections 186,192, and the cutting edges 188,194 thereof extend across the jaw formations 184,190 and have opposite sides engaging the side-walls 146,148 adjacent thereto.

5 5. The finger/toe nail clipper and catcher device according to any one of claims 1 to 4 characterized in that said upper and lower arms extend in substantially horizontal planes from the secured ends thereof.

6. The finger/toe nail clipper and catcher device according to any one of claims 1 to 4 characterized in that said arms, side walls and engaged blade sections completely enclose the interior chamber 24 of said device during the cutting stage of said device.

5 7. The finger/toe nail clipper and catcher device according to any one of claims 1 to 4 characterized in that said mounting means comprise passage means 46,74,166, formed in said side-walls proximate said jaw formations and said projection means being unitary with said actuating lever and receivable within said passage means.

8. The finger/toe nail clipper and catcher device according to claim 1 characterized in that said passage means comprise aligned passages formed in said side walls proximate said jaw formations and said projection means being sidewardly protruding portions 52b,52e,138 carried by said actuating lever and being of size and configuration enabling receipt within said aligned passages for permitting pivotal movement therein.

5 9. The finger/toe nail clipper and catcher device according to claim 1 characterized in that said actuating lever 16 comprises a stationary front plate 52 and a rotating portion 17 each having angled coplanar portions 17c,52h, said angled coplanar portions having alignable bores 17d,52f formed therein, pin means 18 disposed through said aligned bores enabling selective rotation of said rotating portion.

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10. The finger/toe nail clipper and catcher device according to claim 9 characterized by cam means formed on said actuating lever, said cam means comprising a heel formation 17e, 60g adapted to be engaged upon said one of
5 said arms, said heel formation preventing unwanted rotation of said rotation portion during use of said device so as to effect stability of said actuating lever, said heel formation comprising a wide edge at said angled portions bearing against said upper arm when said
10 actuating lever is disposed in the active condition.
11. The finger/toe nail clipper and catcher device according to claims 9 or 10 characterized in that said pin means comprises a rivet 18 tightly connecting said angled portions together yet permitting selective rotation of
5 said rotating portion relative to said front plate.
12. The finger/toe nail clipper and catcher device according to any one of claims 1 to 4 characterized in that said disposal means comprise an opening 15, 170 formed in at least one 2, 174 of said arms and a disposal hatch
5 12, 172 fastened to said at least one of said arms, said hatch capable of selective movement relative to said opening while remaining secured to said device.
13. The finger/toe nail clipper and catcher device according to any one of claims 1 to 4 characterized by an opening 170 formed in at least one 174 of said arms and an angled deflector 178 secured to the interior of said one
5 of said arms, said deflector 178 comprising a block 196 of trapezoidal configuration, the angled deflecting surface 178 thereof being inclined downwardly with the lower edge thereof at the edge of said opening formed in said one of said arms.
14. The finger/toe nail clipper and catcher device according to any one of claims 1 to 4 characterized by an opening 15, 170 formed in at least one of said arms and an angled deflector 13, 178 secured to the interior surface of
5 at least one of said arms along the edge of said opening.

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15. The finger/toe nail clipper and catcher device according to claim 1 characterized in that said passage means comprise aligned closed ended slots 74 formed in said side walls proximate said jaw formations and a planar member 62 having an axial passage and adapted to be received within said aligned closed ended slots, said actuating lever 60 including a base and an arm outwardly extending therefrom, said base capable of being seated within said axial passage, vertical ear means provided on said planar member respectively adjacent said axial passage and having respectively aligned openings formed therein, said base capable of receipt between said vertical ear means. and, said projection means comprise opposite portions of said planar member adapted to be received within said closed ended slots and capable of rotation therewithin 360 degrees, said base defining a heel formation capable of bearing against said upper arm when said base is installed within said axial passage between said vertical ears whereby to force one of said arms toward the other of said arms so as to effect engagement of said blade sections.

16. The finger/toe nail clipper and catcher device according to claim 15 characterized in that said planar member is a disc.

17. The finger/toe nail clipper and catcher device according to claim 16 characterized in that said disc is oval in perimetric configuration.

18. The finger/toe nail clipper and catcher device according to claim 16 characterized in that said disc is circular in perimetric configuration.

19. The finger/toe nail clipper and catcher device according to any one of claims 1 to 4 characterized in that said upper arm is disposed below the longitudinal edges of said side walls whereby to prevent the actuating lever to bear thereagainst when said device is in the inactive condition, said lever further being prevented from being shifted sideways during said inactive

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condition.

20. The finger/toe nail clipper and catcher device according to claim 1 characterized in that said actuating lever 120 comprises an elongate bar section 123, side wings 126,128, and a crossbar 138 having opposite ends 140,142, said elongate bar section having a grasping end 124, longitudinal edges 127, 129, and a heel formation 130 formed at the opposite end thereof, said side wings are parallel and slope upwardly vertically from portions of the longitudinal edges of said longitudinal bar section, said side-walls 146,148 having aligned sockets 166,169 formed therein at a location proximate said jaw formations 145,147, said side wings 126,128 terminating in mounting ends 126b,128b, said mounting ends 126b,128b terminating in aligned slots 134,136, said ends 140,142 of said crossbar 138 being seated within said aligned slots 134,136, said slots 134,136 adapted for alignment with said sockets 166,169 and said projection means in the form of said crossbar ends 140,142 being receivable within said sockets 166,169 with said actuating lever capable of being disposed above said device during the active condition and below said device during the inactive condition thereof.

21. The finger/toe nail clipper and catcher device according to claim 20 characterized in that said crossbar 138 comprises an elongate mid-section 144 and said protruding ends 140,142 being of size and configuration for seating thereof within said aligned slots of said side wings and within said passage means formed in said side walls.

22. The finger/toe nail clipper and catcher device according to claim 21 characterized in that said elongate middle section 144 of said crossbar 138 has front and rear longitudinal edges 144a,144b, said front longitudinal edge has a lower portion adapted to rest upon the upper surface of said upper arm during the active condition of said actuating lever whereby to provide resistance to the movement of said actuating lever from unwanted rotation

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10 from the active condition thereof, said rear longitudinal
edge having a lower portion resting against the upper
surface of said upper arm during the inactive position of
said actuating lever below said device preventing movement
of said actuating lever during the inactive position of
said of actuating lever below said device so as to
15 maintain said actuating lever in place below said device,
said actuating lever being maintained against movement
thereof to other than the inactive condition.

23. The finger/toe nail clipper and catcher device
according to any one of claims 20, 21 or 22 characterized
in that said bar section includes shoulder portions
123a, 123b and said side walls 146, 148 have upper
5 longitudinal edge portions 158, 159 defining notches
160, 149 therein, said shoulder portions capable of
extending below the level of the remaining upper
longitudinal edges of said side walls when said actuating
lever is manipulated to the cutting position, said notches
10 being located along said upper longitudinal edges at a
position preventing said side walls from blocking said
shoulder portions.

24. The finger/toe nail clipper and catcher device
according claims 20, 21 or 22 characterized by an opening
170 formed in at least one 174 of said arms and an angled
deflector 178 secured to the interior of one 174 of said
5 arms, said deflector comprising a block 196 of trapezoidal
configuration, the angled deflecting surface 178 thereof
inclined downwardly with the lower edge thereof at the
edge of said opening formed in said lower arm.

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AMENDED CLAIMS

[received by the International bureau on 9 July 1996 (09.07.96);
original claims 1-24 replaced by amended claims 1-39 (10 pages)]

1. A finger/toe nail clipper and catcher assembly having
elongate upper and lower arms (14,2;176,178) arranged in
spaced generally horizontal overlying arrangement; the
upper arm (14;176) having limited resilience; the arms
5 each having first ends (8) secured together and opposite
second ends terminating in facing jaw formations (14a,2a;
145,147); the jaw formations terminating in blade sections
(32,34;156,150) having sharpened cutting edges; generally
vertical side walls (4,6;146,148) formed along the
10 opposite longitudinal edges of the lower arm along the
length thereof and the blade sections of the jaw
formations defining an entrance for receiving the
finger/toe nail introduced therebetween; aligned passage
means (46;166,168) formed in the vertical side walls at a
15 location proximate the jaw formations and an actuating
lever (16;120) associated with said passage means for
pivotal movement selectively bearing against the upper arm
for forcibly effecting engagement of said sharpened
cutting edges for severing the finger/toe nail introduced
20 therebetween; and means for receiving and disposing of the
resulting nail clippings: characterized in that said
actuating lever comprises a first member (52;62;138,144)
placable between said side walls closely proximate to said
upper arm and an elongate rotatable portion (17b,52a;60b,
25 60d;123,126,128, 138,144) extending rearward from said
first member and coupled to said first member extending
rearward therefrom for rotation thereabout between an
active condition capable of exercising force upon said
upper arm effecting engagement of said sharpened edges and
30 a passive condition incapable of exercising said force.
2. The finger/toe nail clipper and catcher assembly
according to claim 1 characterized in that said blade
sections include angular side blade sections (42.44;
155,157;152,154) terminating in sharpened straight-line
5 cutting edges (42a,44a), said angular side blade sections
and the sharpened edges thereof facing inward and engaging

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said adjacent side walls defining an unobstructed entrance to the interior of said assembly accommodating there-
through finger/toe nails of varied length and width and
10 defining a fully enclosed interior chamber (24) for receiving the resulting nail clippings while preventing exterior scattering of the clippings therefrom during the cutting stage of said assembly.

3. The finger/toe nail clipper and catcher assembly according to claims 1 or 2 characterized in that said first member is a stationary front plate (52) and said
5 elongate rotatable portion (17), each having angled coplanar portions (17c,52h) each having alignable bores (17d,52f) formed therein, bearing/fastener means (18) disposed through said aligned bores enabling selective rotation of said elongate rotatable portion (17).

4. The finger/toe nail clipper and catcher assembly according to claims 1 or 2 characterized in that said first member comprises a stationary front plate (52), said
5 elongate rotatable portion (17) having a terminal end (17b), each said front plate and said elongate rotatable portion having angled coplanar portions (17c,52h); said angled portions having coplanar surfaces and alignable bores (17d,52f) formed therein, fastener/bearing means (18) seated through said alignable bores (17d,52f) joining
10 said coplanar portions surface to surface enabling selective rotation only of said elongate rotatable portion (17) between an active condition with said elongate rotatable portion extending diagonally away from said upper arm and an inactive condition whereat said elongate
15 rotatable portion is inverted from its active condition with the terminal end (17b) thereof being closely proximate said upper arm.

10. The finger/toe nail clipper and catcher assembly according to claims 3 or 4 characterized by cam means formed on said actuating lever, said cam means comprising a heel formation 17e,60g adapted to be engaged upon said
5 one of said arms, said heel formation preventing unwanted

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- rotation of said rotation portion during use of said device so as to effect stability of said actuating lever, said heel formation comprising a wide edge at said angled portions bearing against said upper arm when said
- 10 actuating lever is disposed in the active condition.
11. The finger/toe nail clipper and catcher assembly according to claim 3 characterized in that said fastener/bearing means comprises a rivet 18 tightly connecting said angled portions together yet permitting selective rotation
- 5 of said rotating portion relative to said front plate.
12. The finger/toe nail clipper and catcher assembly according to any one of claims 1-4, 10 and 11 characterized by disposal means comprising an opening
- 15, 170 formed in at least one 2, 174 of said arms and a
- 5 disposal hatch 12, 172 fastened to said at least one of said arms, said hatch capable of selective movement relative to said opening while remaining secured to said device.
13. The finger/toe nail clipper and catcher assembly according to any one of claims 1-4, 10, 11 characterized by an opening 170 formed in at least one of said arms and an angled deflector 178 secured to the interior of said one
- 5 of said arms, said deflector 178 comprising a block 196 of trapezoidal configuration, the angled deflecting surface 178 thereof being inclined downwardly with the lower edge thereof at the edge of said opening formed in said one of said arms.
14. The finger/toe nail clipper and catcher assembly according to any one of claims 1-4, 10, 11 characterized by an opening 15, 170 formed in at least one of said arms and an angled deflector 13, 178 secured to the interior surface
- 5 of at least one of said arms along the edge of said opening.
15. The finger/toe nail clipper and catcher assembly according to any one of claims 1 or 2 characterized in that said passage means comprise aligned closed ended slots 74 formed in said side walls proximate said jaw

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- 5 formations and said first member 62 being planar and
 having an axial passage, said actuating lever 60 including
 a base and an arm outwardly extending therefrom, said base
 capable of being seated within said axial passage,
 vertical ear means provided on said first member
10 respectively adjacent said axial passage and having
 respectively aligned openings formed therein, said base
 capable of receipt within said axial passage between said
 vertical ear means and within said axial passage, said
 first member having opposite portions adapted to be
15 received within said closed ended slots and capable of
 rotation therewithin 360 degrees, said base defining a
 heel formation capable of bearing against said upper arm
 when said base is installed within said axial passage
 between said vertical ears whereby to force said upper arm
20 toward the lower arm so as to effect cutting engagement of
 said blade sections.
16. The finger/toe nail clipper and catcher assembly
 according to claim 15 characterized in that said planar
 member is a disc.
17. The finger/toe nail clipper and catcher assembly
 according to claim 16 characterized in that said disc is
 oval in perimetric configuration.
18. The finger/toe nail clipper and catcher assembly
 according to claim 16 characterized in that said disc is
 circular in perimetric configuration.
20. The finger/toe nail clipper and catcher assembly
 according to claims 1 or 2 characterized in that said
 actuating lever 120 comprises an elongate bar section 123,
 side wings 126,128, and a crossbar 138 having opposite
5 ends 140,142, said elongate bar section having a grasping
 end 124, longitudinal edges 127, 129, and a heel formation
 130 formed at the opposite end thereof, said side wings
 are parallel and slope upwardly vertically from portions
 of the longitudinal edges of said longitudinal bar
5 section, said side-walls 146,148 having aligned sockets
10 166,169 formed therein at a location proximate said jaw

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15 formations 145,147, said side wings 126,128 terminating in
mounting ends 126b,128b, said mounting ends 126b,128b
terminating in aligned slots 134,136, said ends 140,142 of
said crossbar 138 being seated within said aligned slots
134,136, said slots 134,136 adapted for alignment with
said sockets 166,169 and said crossbar ends 140,142 being
receivable within said sockets 166,169 with said actuating
20 lever capable of being disposed above said device during
the active condition and below said device during the
inactive condition thereof.

21. The finger/toe nail clipper and catcher assembly
according to claim 20 characterized in that said crossbar
138 comprises an elongate mid-section 144 and said
protruding ends 140,142 being of size and configuration
5 for seating thereof within said aligned slots of said side
wings and within said aligned sockets formed in said side
walls.

22. The finger/toe nail clipper and catcher according to
claim 21 characterized in that said elongate middle
section 144 of said crossbar 138 has front and rear
longitudinal edges 144a,144b, said front longitudinal edge
5 has a lower portion adapted to rest upon the upper surface
of said upper arm during the active condition of said
actuating lever whereby to provide resistance to the
movement of said actuating lever from unwanted rotation
from the active condition thereof, said rear longitudinal
10 edge having a lower portion resting against the upper
surface of said upper arm during the inactive position of
said actuating lever below said assembly preventing
movement of said actuating lever during the inactive
position of said of actuating lever below said assembly so
15 as to maintain said actuating lever in place below said
assembly, said actuating lever being maintained against
movement thereof to other than the inactive condition.

23. The finger/toe nail clipper and catcher assembly
according to any one of claims 20,21 or 22 characterized
in that said bar section includes shoulder portions

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5 123a, 123b and said side walls 146, 148 have upper
longitudinal edge portions 158, 159 defining notches
160, 149 therein, said shoulder portions capable of
extending below the level of the remaining upper
longitudinal edges of said side walls when said actuating
lever is manipulated to the cutting position, said notches
10 being located along said upper longitudinal edges at a
position preventing said side walls from blocking said
shoulder portions.

24. The finger/toe nail clipper and catcher assembly
according to any one of claims 20 to 23 characterized by
an opening 170 formed in at least one 174 of said arms and
an angled deflector 178 secured to the interior of one of
5 said arms, said deflector comprising a block 196 of
trapezoidal configuration, the angled deflecting surface
178 thereof inclined downwardly with the lower edge
thereof at the edge of said opening formed in said lower
arm.

25. A finger/toe nail clipper and catcher assembly
according to claims 1 or 2 characterized in that the
passage means are formed as elongate parallel closed ended
slots (74) and said first member (62) having an axial
5 passage (78) and opposite edge portions disposable within
said elongate closed ended slots, vertically oriented ear
means (64, 76) carried by said first member and located
adjacent said axial passage, said ear means having aligned
bores (66, 67), said elongate rotatable member (60)
10 including a base portion (60b) and an elongate outwardly
extending lever portion (60d) having a terminal end (60e),
said base portion having opposite pins (67) outwardly
extending therefrom and seated between said ear means with
said pins disposed within said aligned bores thereby
15 pivotally securing said base portion to said first member,
said first member being placed between said side walls
with said base portion engagable with said upper arm and
said elongate lever portion capable of at least 180 degree
rotation carrying said first member therealong with at

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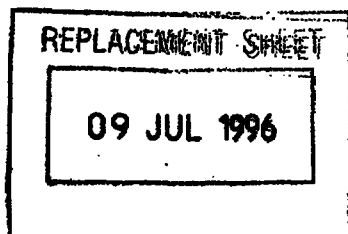
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20 least a pair of the opposite edges thereof riding within
said closed ended slots and said first member positioned
over said upper arm for applying force to said upper arm
upon manipulation of said elongate outwardly extending
25 lever portion toward said upper arm whereby to bring the
sharpened cutting edges of said blade sections into
severing engagement with a finger/toe nail introduced into
said assembly between said jaw formations.

26. A finger/toe nail clipper and catcher assembly
according to claims 1 or 2 characterized in that said
elongate rotating portion is an elongate bar (123) and
side wings (126,128), said first member is formed as a
5 cross bar (138,144) having opposite ends (134;140,142),
said elongate bar having a grasping end (124),
longitudinal edges (127,129), and a heel formation (130)
formed at the opposite end thereof, said side wings being
parallel and slope upwardly vertically from portions of
10 the longitudinal edges of said elongate bar; said passage
means being aligned sockets (166,169); said side wings
(126,128) terminating in mounting ends (126b,128b;140,142)
secured to said terminal portions bridging same with said
ends (126b,128b;140,142) passing through said passage
15 means (134; 166,169) for rotation therewithin between said
operative condition and said passive conditon whereat said
crossbar is disposed beneath the lower arm and said side
wings are engaged with the exterior surface of said side
walls and positioning means effective to maintain
20 stability of said actuating lever in its assumed
conditions.

27. The finger/toe nail clipper and catcher assembly
according to claims 1 or 2 characterized in that said
first member is an angled mounting plate (52a) seatable
upon the upper arm, said mounting plate including a front
5 portion having a unitary angular arm defining a canted
surface, said elongate rotatable portion having a unitary
bend extending at an angle complementary to said canted
surface of said unitary angular arm and terminating in a



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10 grasping portion, bearing/fastening means coupling said
unitary angular arm and said unitary bend with said canted
surface of said unitary angular arm engaged in parallel
planes enabling said elongate rotatable portion extending
away from said upper arm and an inactive condition whereat
said elongate rotatable portion is inverted from its
15 active condition with said grasping end thereof being
closely proximate said upper arm.

28. The finger/toe nail clipper and catcher assembly
according to any one of claims 1 to 4, 25, 27 characterized
in that said actuating lever includes a heel formation
unitary therewith and having an edge capable of bearing
5 against said upper arm when said actuating lever is in
active operating condition whereby to prevent undesired
movement of said actuating lever during use of said
assembly.

29. The finger/toe nail clipper and catcher assembly
according to any one of claims 1 to 4 characterized in
that said first member and said rotatable rotatable
portion include angled portions respectively defining an
5 acute angle.

30. The finger/toe nail clipper and catcher assembly
according to claim 25 characterized in that said base
portion carries a horizontal bore therethrough and an
elongate pin passing through said bore with opposite ends
5 thereof extending outward from said bore, said opposite
pins comprising the ends of said elongate pin.

31. The finger/toe nail clipper and catcher assembly
according to claims 4 or 30 characterized in that said
first member comprises a planar disc having an oval
perimetric configuration and said side walls are indented
5 along said elongate closed ended slots, said first member
having diametrically opposite axial edge portions adapted
to be selectively disposable within said slots below the
indented portions of said side walls.

32. The finger/toe nail clipper and catcher assembly
according to claims 3 or 4 characterized in that said

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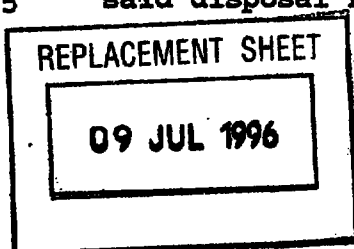
first member includes a front planar section placable upon said upper arm proximate said upper jaw formation.

33. The finger/toe nail clipper and catcher assembly according to claim 27 characterized in that said unitary bend of said elongate rotatable portion defines a heel formation having a wide edge capable of bearing against
5 said upper arm and said side walls when said actuating lever is in active condition whereby to prevent undesired rotation of said elongate rotatable portion during use of said assembly.

34. The finger/toe nail clipper and catcher assembly according to claim 26 characterized by positioning means comprising said crossbar (144) having an elongate middle section provided with a pair of opposite longitudinal edge
5 portions (144a, 144b), one edge portion (144b) engagable with said upper arm when said actuating lever assumes its operative condition thereby effecting resistance against unintentioned rotation thereof, said other edge portion (144a) engagable with said upper arm when said actuating
10 lever is in its passive condition for preventing unintentioned rotation of said actuating lever from its passive condition with said heel formation engaged with the undersurface of said lower arm.

35. The finger/toe nail clipper and catcher assembly according to claims 26 and 34 characterized in that said side wings include shoulders formed thereon adjacent the juncture thereof with said elongate bar proximate said
5 heel formation and outwardly opening notches formed in the upper longitudinal edges of said side walls capable of receiving said shoulders when said actuating lever is urged to bring said cutting edges of said jaw formation to their cutting condition.

36. The finger/toe nail clipper and catcher assembly according to any one of claims 1-4, 10, 11, 15-18, 20-35 characterized by disposal hatch means for disposing of the severed nail clippings from the interior of said assembly,
5 said disposal hatch means comprising an elongate



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longitudinal disposal opening formed in said lower arm and an elongate cover plate secured to the undersurface of said lower arm proximate said disposal opening for swingable sideways horizontal movement between a position covering said disposal opening.

37. The finger/toe nail clipper and catcher assembly according to any one of claims 1-4,10,11,15-18,20-35 characterized by an elongate disposal opening formed in said lower arm; an angled deflector (180;146a) positioned within the interior of said assembly adjacent said disposal opening, said angled deflector defining a canted deflector surface facing said disposal opening for reboundingly directing nail clippings toward said opening and an elongate cover plate (12;172) pivotally secured to the undersurface of said lower arm adjacent said disposal opening for sideways swingable horizontal movement between a position for gaining exterior access to said interior of said assembly and a position covering said disposal opening.

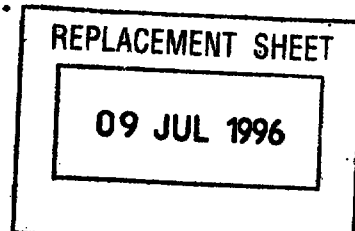
38. The finger/toe nail clipper and catcher assembly according to any one of claims 1-4,10,11,15-18,20-35 characterized by nail clippings disposal means comprising an elongate opening formed in said lower arm and a trapezoidal-shaped block (196) disposed secured between said upper and lower arms at the secured ends thereof, said block having an angled wall (146a) inclined downwardly over said opening so as to deflect nail clippings toward said opening with said block positioned adjacent said opening and a cover plate swingably secured to the undersurface of said lower arm extending over said opening for selective displacement to establish access thereto for achieving disposal of said nail clippings.

39. The finger/toe nail clipper and catcher assembly according to any one of claims 1-4,10,11,15-18,20-38 characterized in that said lower ones of said blade sections are unitary with said lower arm and adjacent portions of said side walls, said blade sections extending across the width of said upper and lower arms.

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AMENDED SHEET (ARTICLE 19)



STATEMENT UNDER ARTICLE 19(1)

The original claims in this application have been amended particularly to more particularly to describe the essential features of the finger/toe nail clipper and catcher assembly according to the invention, directing the principal thrust of the invention to the distinctive two-piece actuating lever. The provision of the actuating lever of the invention enables the elimination of the conventional vertical post for mounting and supporting the conventional actuating lever of the prior art nail clipper, and thus defining a non-obstructive entrance between the cutting blades of the jaw formations of the conventional clipper constructions. The two-piece actuating lever also facilitates the transition between the active stage of the clipper construction and the inactive or passive stage thereof. Further, the invention further provides facing blade sections terminating in sharpened cutting edges, including angular straight-line side blades cooperating with lengthwise side walls to define a fully enclosed interior chamber when the clipper is in use, so as to prevent outward scattering of the resulting nail clippings during use and providing means for receiving and retaining the nail clippings therein for latter disposal via disposal hatch means also provided by the invention without requiring separate collecting means, such as provided by the art cited in the international search report. The invention provides unitary side walls shielding the length of the otherwise open sides of the clipper assembly, said side walls cooperating with the angular side blades of the invention to prevent escape of the nail clippings during use of the clipper. The vertical narrow side portions, such as provided by the reference, simply serves to pivotally support the actuating lever and further requires a blocking wall member to obstruct the entry of the nail clippings toward the interior of the clipper. Further, the mountable and dismountable collector taught by the reference, must require separation of the collector from the clipper for disposing of the collected nail clippings. The actuating lever proposed by

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the reference is seatable by sliding the setting or pivot bar thereof into rearwardly opening slot means terminating in inner sockets and formed in the narrow vertical side walls.

The invention provides for three embodiments of the invention, namely 1) a pair of angled surfaces are defined by a mounting plate and an elongate rotatable portion coupled together so that the rotatable portion is oriented easily between an active condition diagonally directed away from the limitedly resilient upper arm of the assembly enabling manipulation of the said arm toward said upper arm causes the jaw formations carrying the blade sections toward each other, severing the nail introduced through the said entrance. and an inactive or passive condition, with the elongate portion directex toward the said upper arm with the elongate portion directed at its free end toward said upper arm, preventing actuation of the cutting action. The construction of actuating lever of this embodiment enables the actuating lever to be rotated about its mounting and inverted to establish its passive or inactive condition.

The second embodiment provides an actuating lever which includes an elongate portion including a base coupled to a planar mounting member arrangable seatable upon the limited resilient upper arm of the clipper, engaged within closed ended slots formed in the shielding side walls provided along the length of the clipper. The planar mounting member can be rotated to seat and to unseat the elongate portion of the actuating lever, enabling the lever to be positioned between an active and a passive (or inactive) condition, such rotation being not less than 180 degrees (preferably 360 degrees) simply by rotating the elongate portion.

The third embodiment provides an actuating lever having side wings bridged by a crossbar, and pivotally mounted to the shielding sidewalls, the said lever being flippable by pivotal rotation about the pivot point with the crossbar and the side wings serving to maintain the stability of the actuating lever both in the active condition (with the lever outwardly

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extending away from the clipper, and the inactive condition, with the lever engaged upon the undersurface of the clipper.

The side blades according to the invention face inwardly, leading along a straight-line to their engagement with the shielding side walls provided by the invention. The cited prior art fails to provide angular side blades having sharpened cutting edges in combination with concave center blades or in combination with the two-piece actuating lever. .

Each actuating lever embodiment of the invention characterizing the invention is of new and unobvious construction, easily maneuverable and versatile in changing from its active to its passive (or inactive) condition. Each is strong and maintainable in either condition. Each is provided with structure preventing undesired sideways shifting during use, a disadvantage of most nail clippers available to the art presently. Each provides unobstructed entry for nails of varied width and length--contrasting with the capability of structures having the pin, mounting post or other obstacles limiting the depth of entry for the varied different finger/toe nails into the interior of the clipper via between the blades thereof.

In summary, the finger/toe nail clipper and catcher assembly provided by the invention as claimed is centered by provision of the actuating lever, made the thrust of the invention, enabling the conventional mounting pin (or post) for the said lever to be omitted, the lever being mountable in passages provided in side walls provided unitary with the lower arm of the assembly, at a location adjacent the jaw formations carried by the upper and lower arms of the assembly. The lever embodying the invention is rotatable between its operating (active) condition and its passive condition, the condition in which it may be placed in the user's pocket with the blades and any outwardly protruding elements being non-interferent with its safe disposition within the user's pocket. No extra covering element is required to contain the produced nail clippings, yet disposal of the

-38-

gathered nail clippings is facilitated by the disposal hatch means provided. Additionally, means are provided to direct these clippings toward the far interior of the assembly, yet access thereto is facilitated, without separation from the assembly. The art fails to provide teachings which would obviously lead into the claimed combination including the actuating lever characterizing the applicant's combination, its structure and functional operation and advantages. The comments made herein are not intended to "downplay" the art cited in the International Search Report but is intended to evidence the unlikelihood that one skilled in this art would consider as obvious the applicant's claimed finger/toe nail clipper and catcher assembly as claimed.

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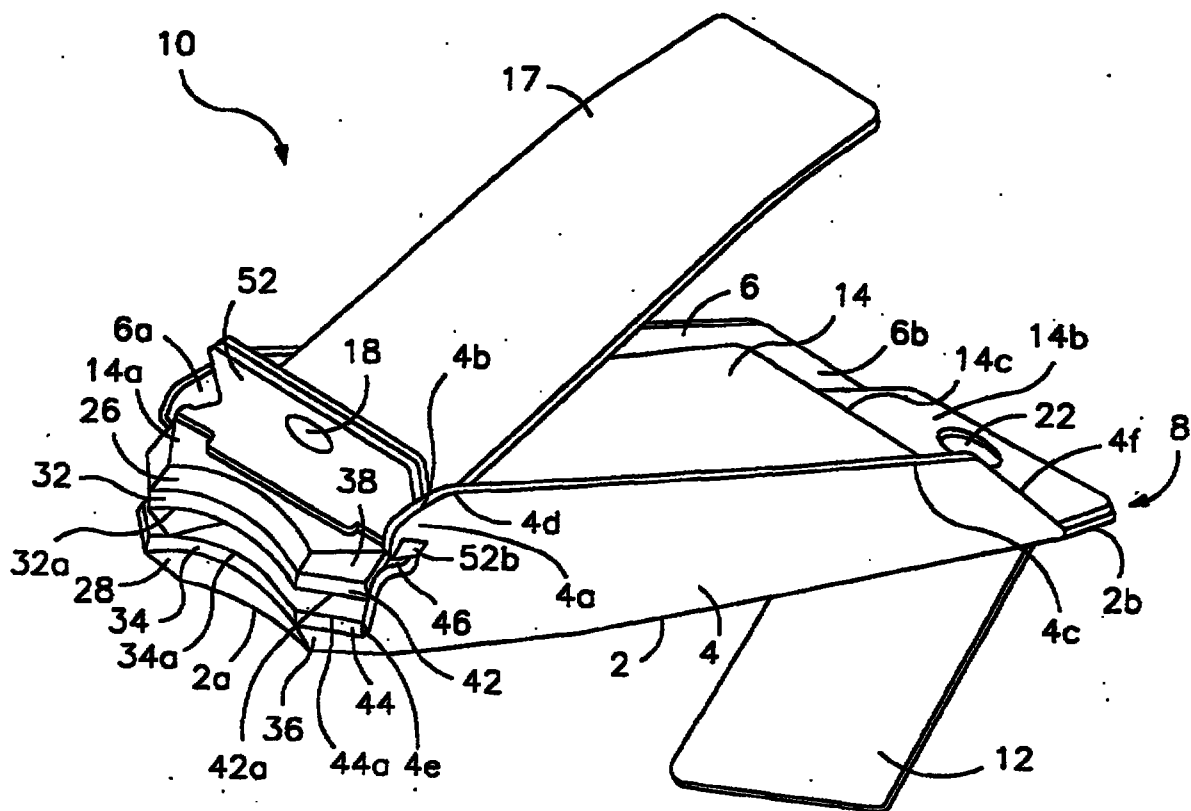


FIG. 1

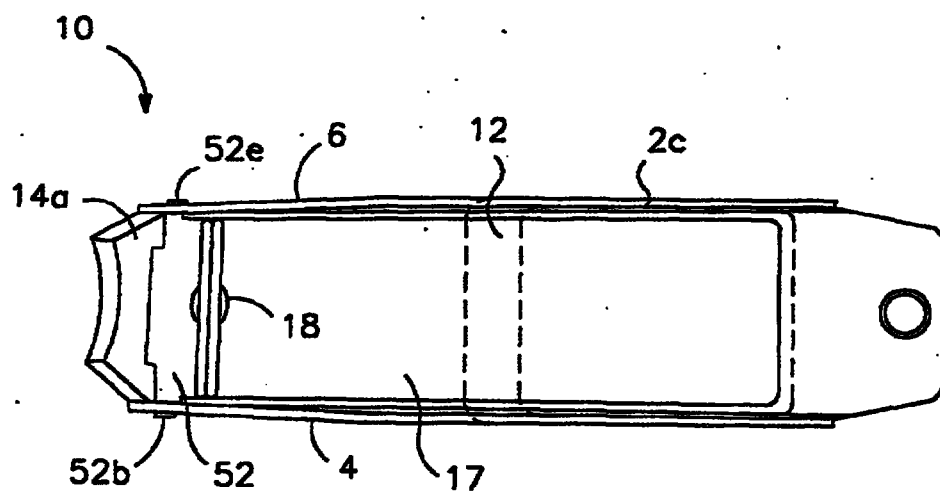


FIG. 2

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FIG. 3

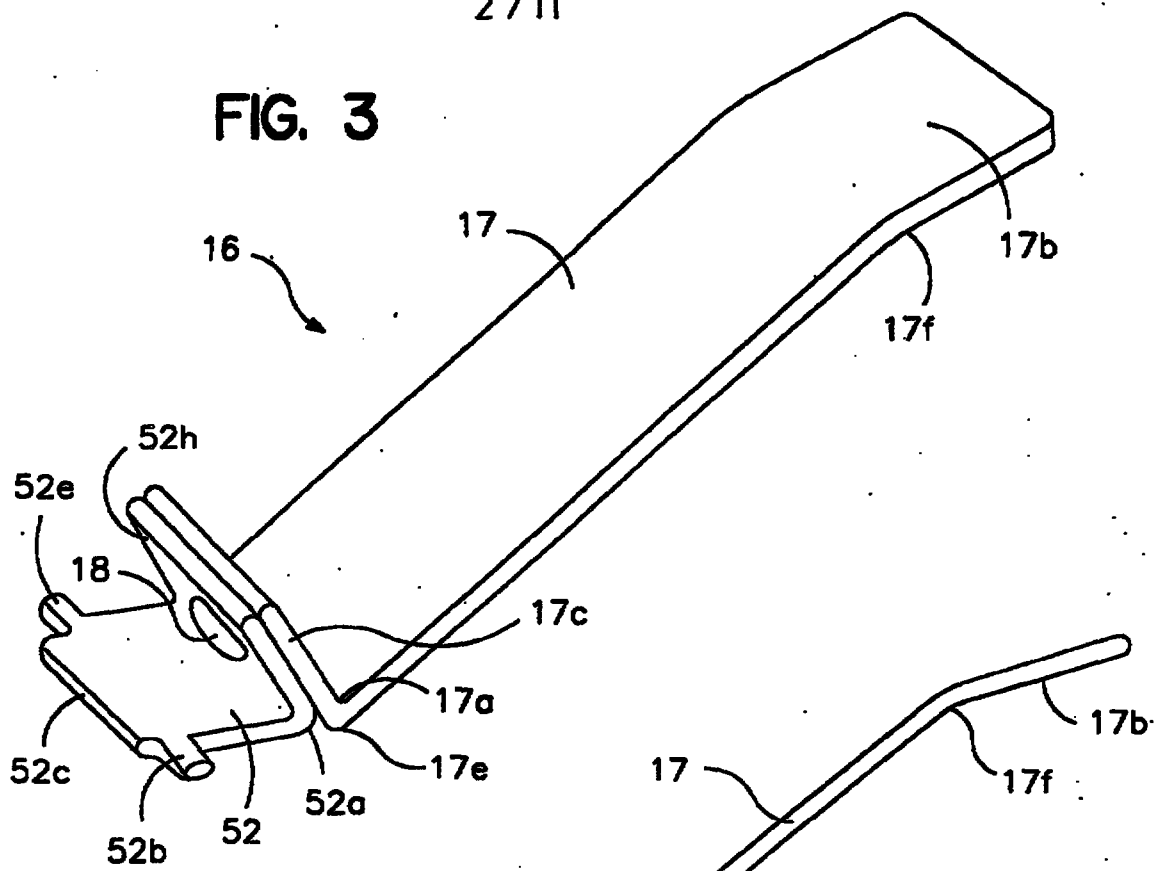


FIG. 4

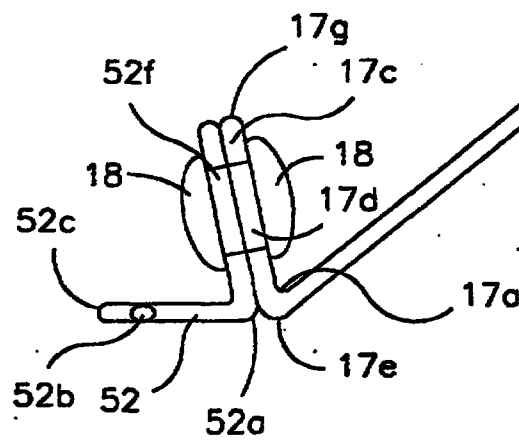
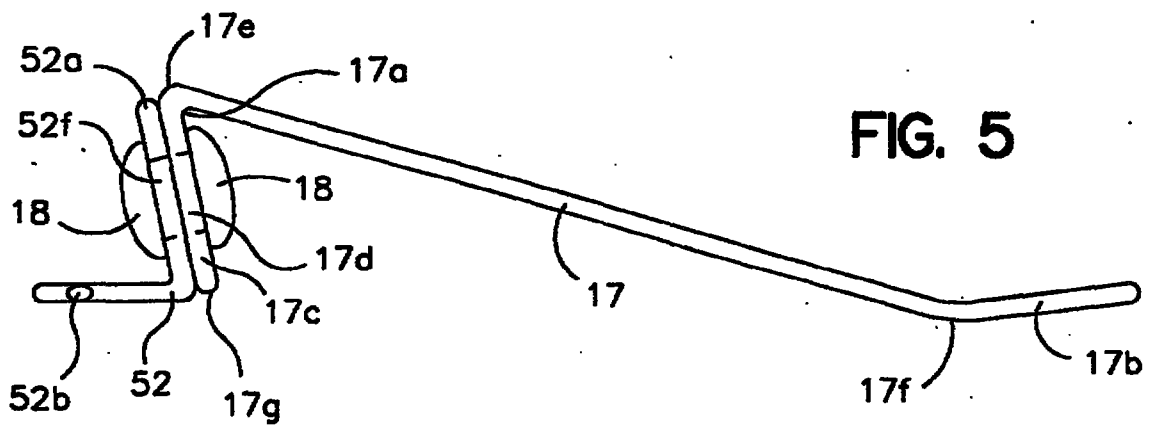


FIG. 5



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FIG. 6

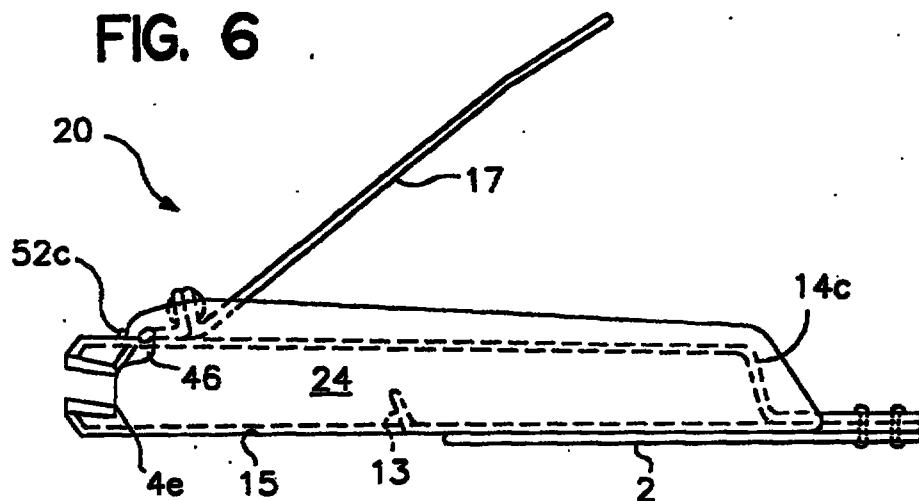
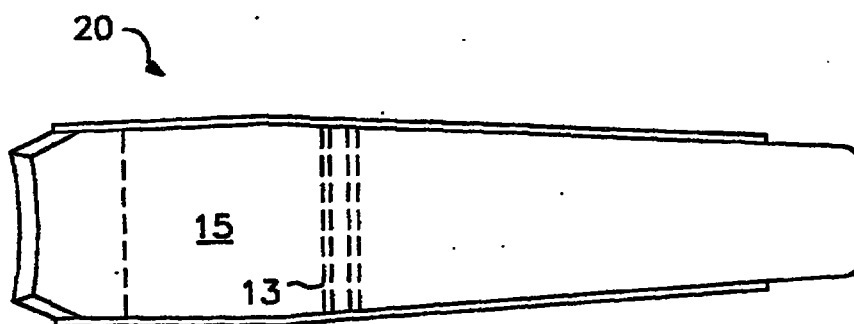


FIG. 7



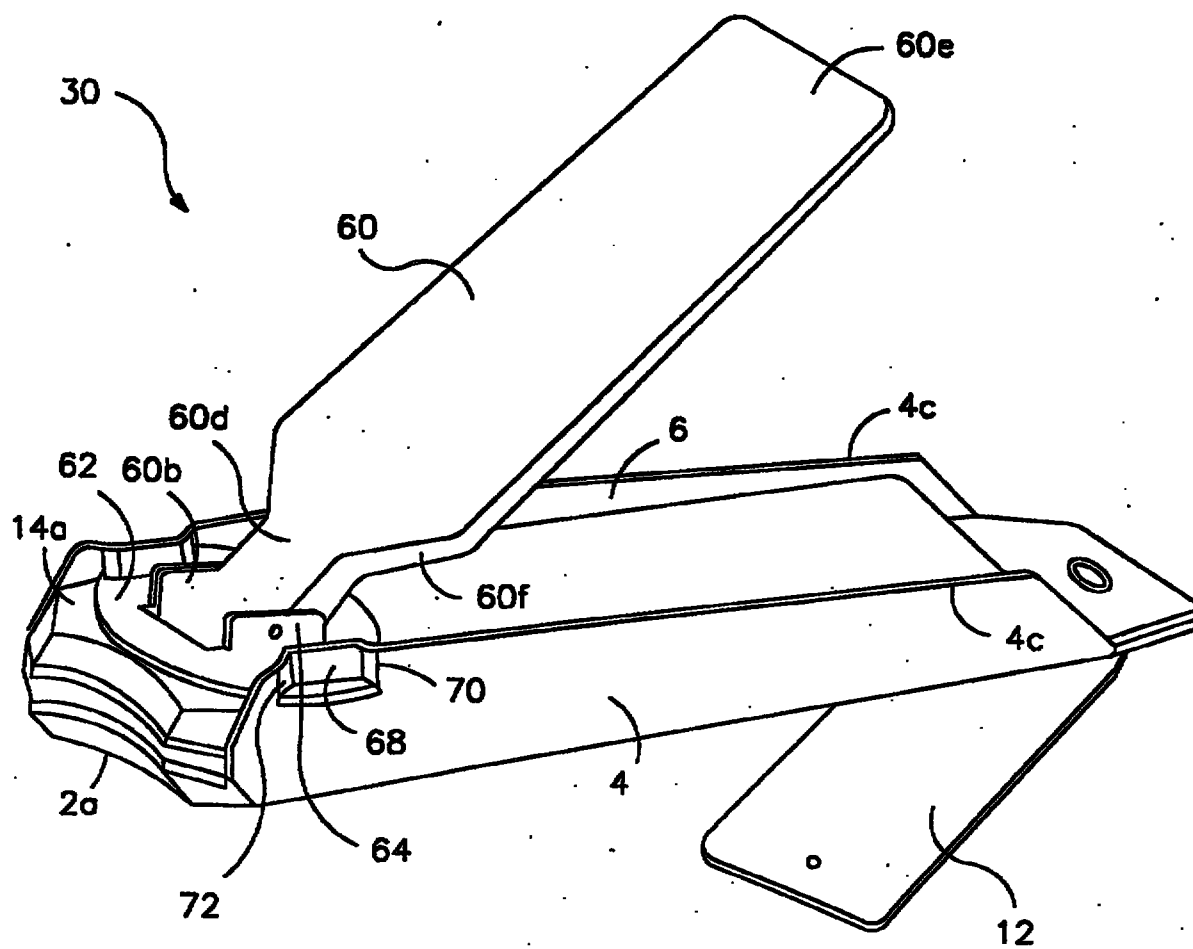
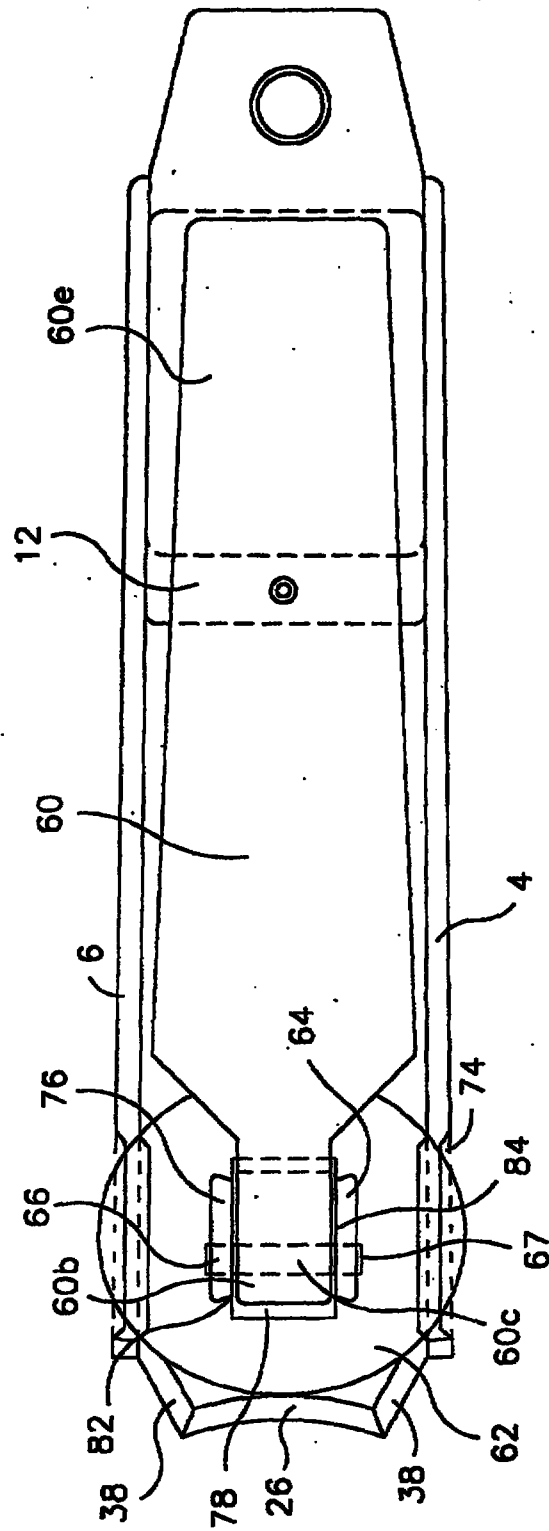
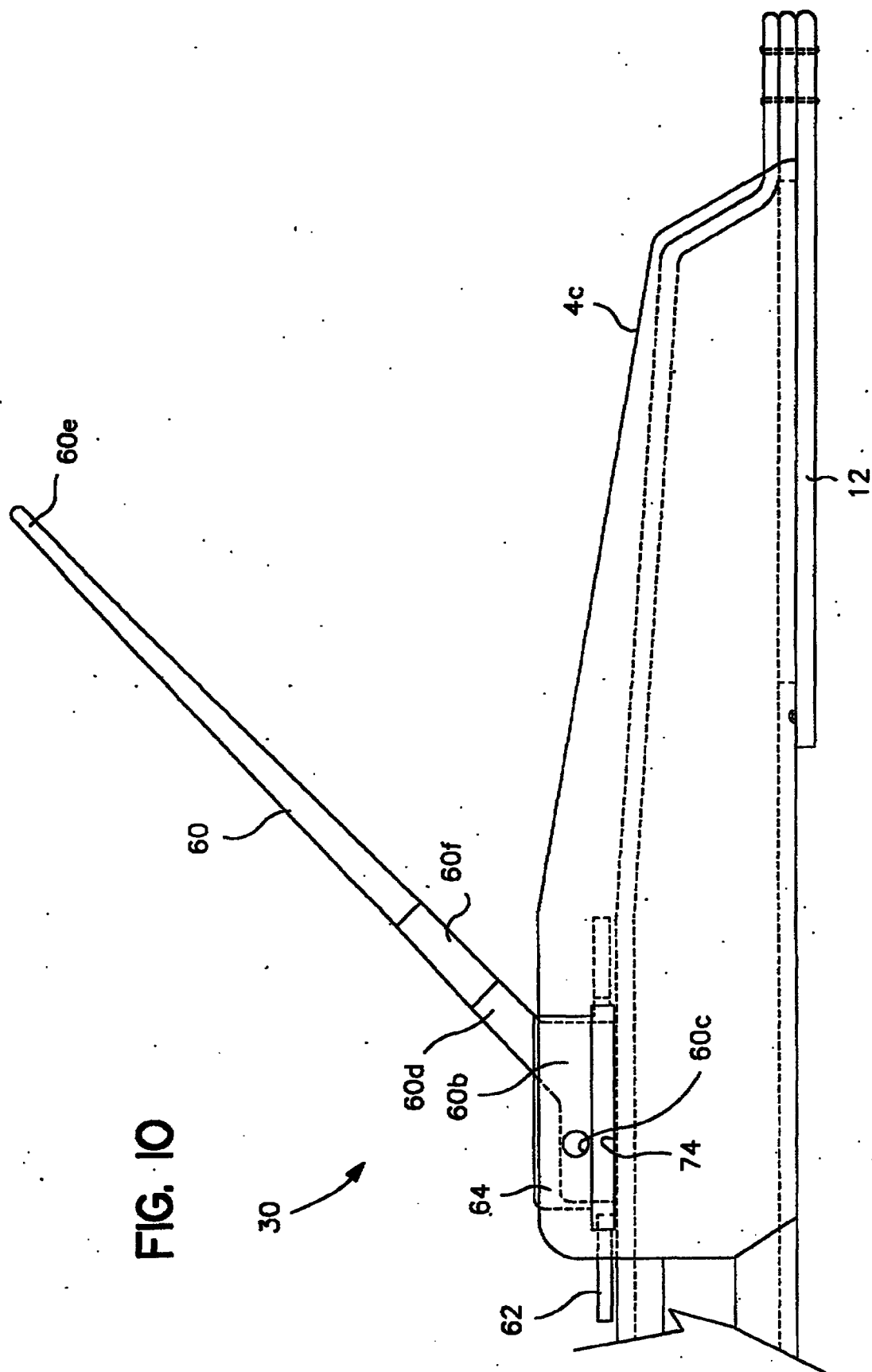


FIG. 8



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FIG. 11

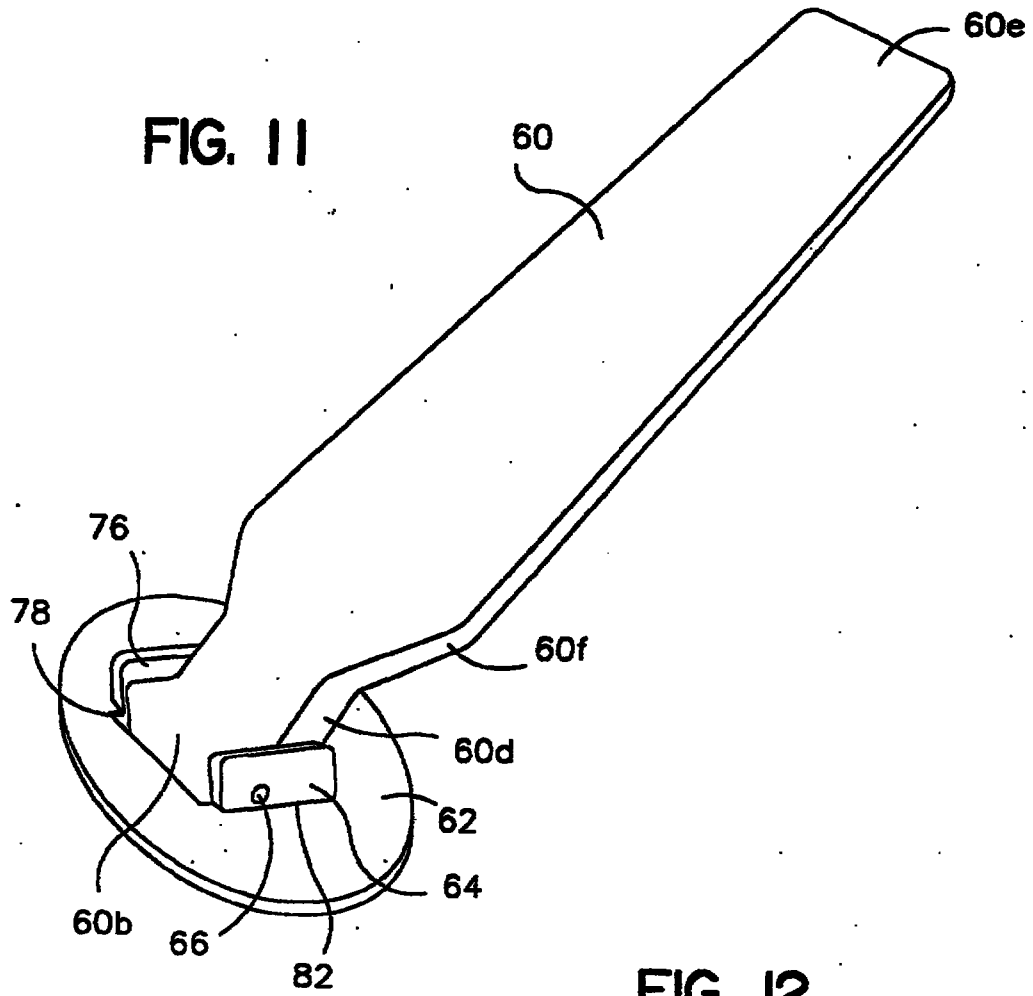


FIG. 12

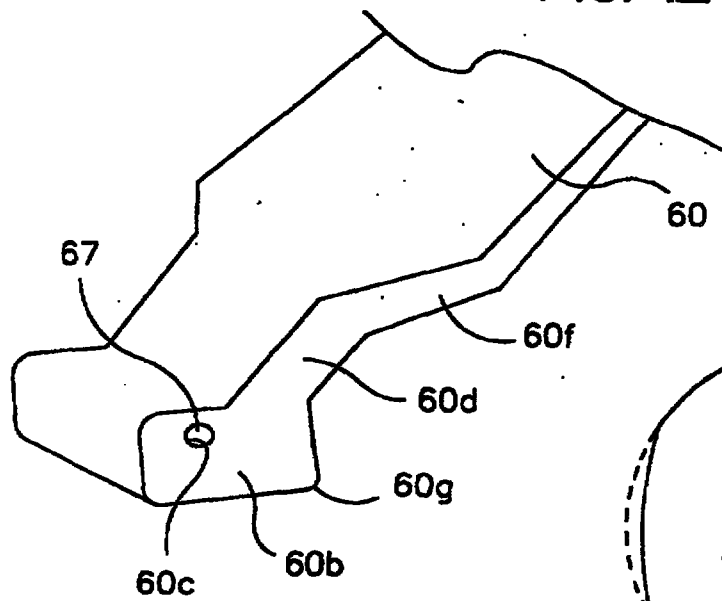
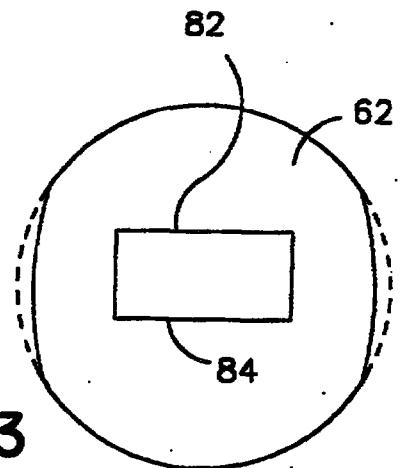


FIG. 13



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FIG. 14

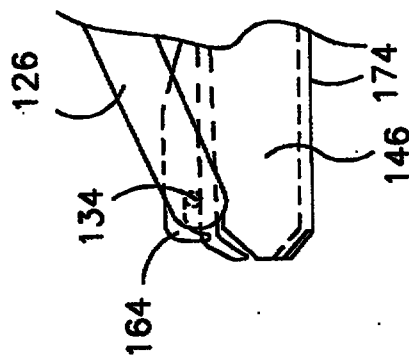


FIG. 15

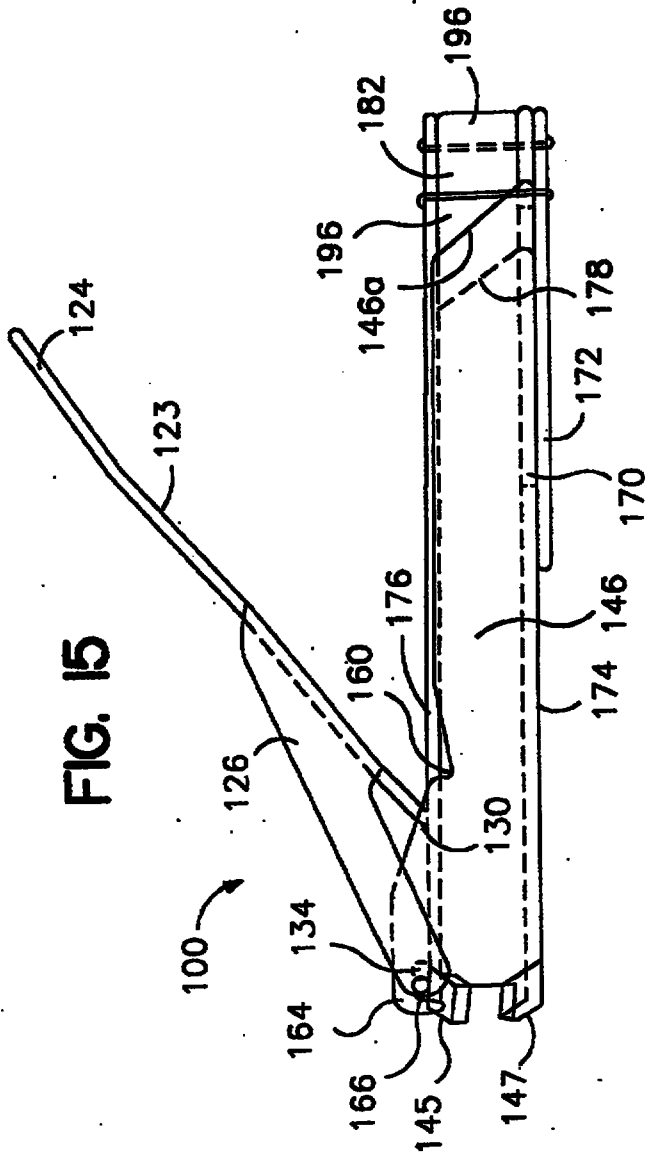


FIG. 17

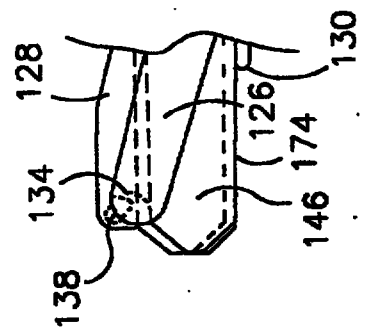
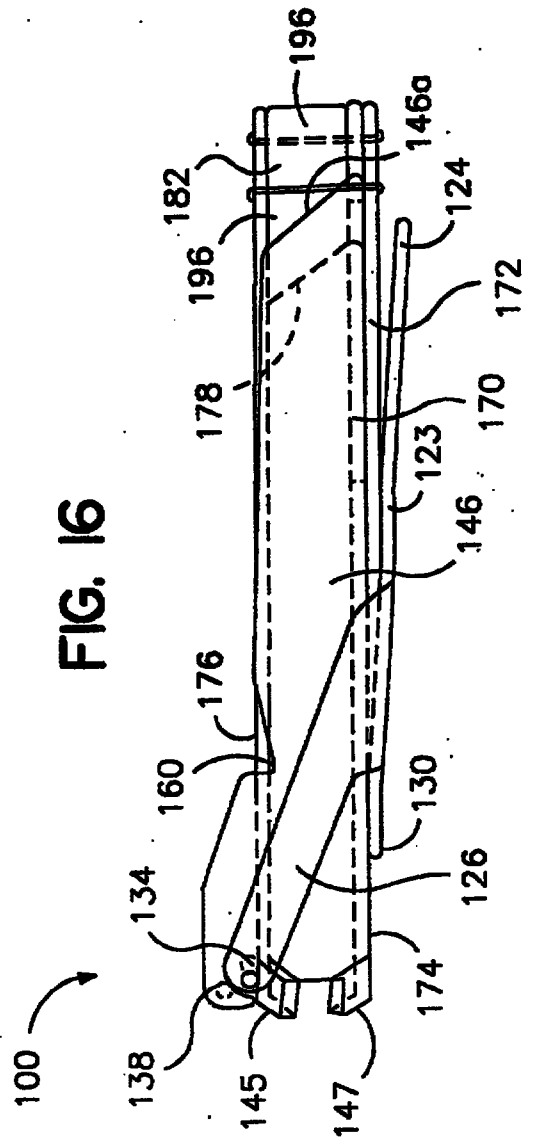


FIG. 16



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FIG. 18

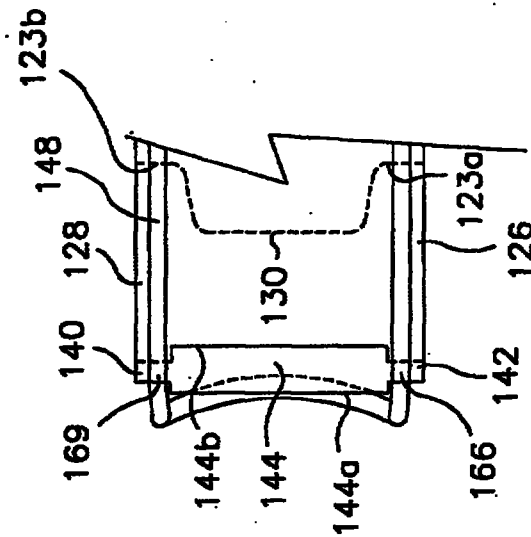
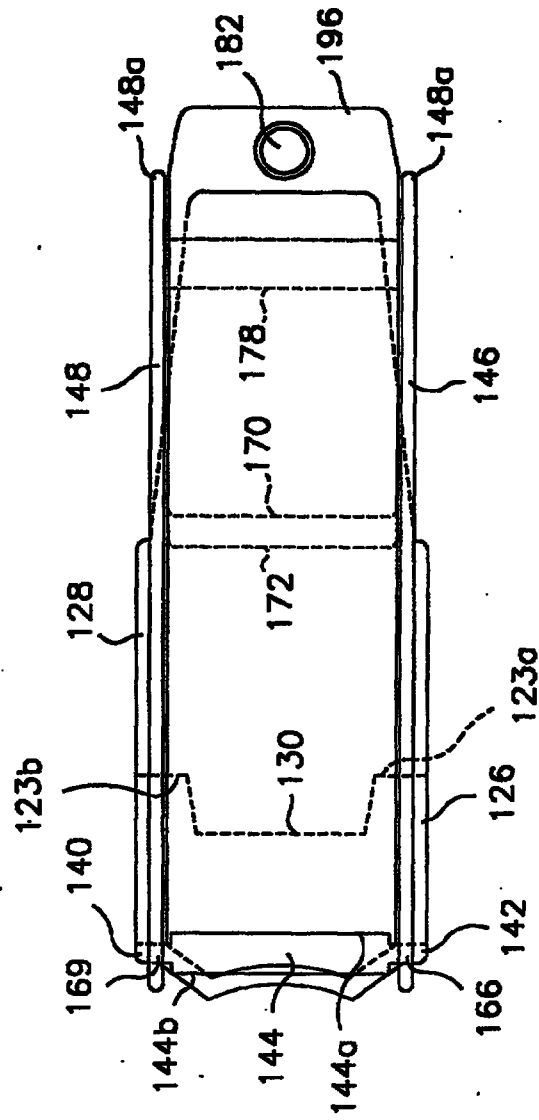


FIG. 19



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FIG. 20

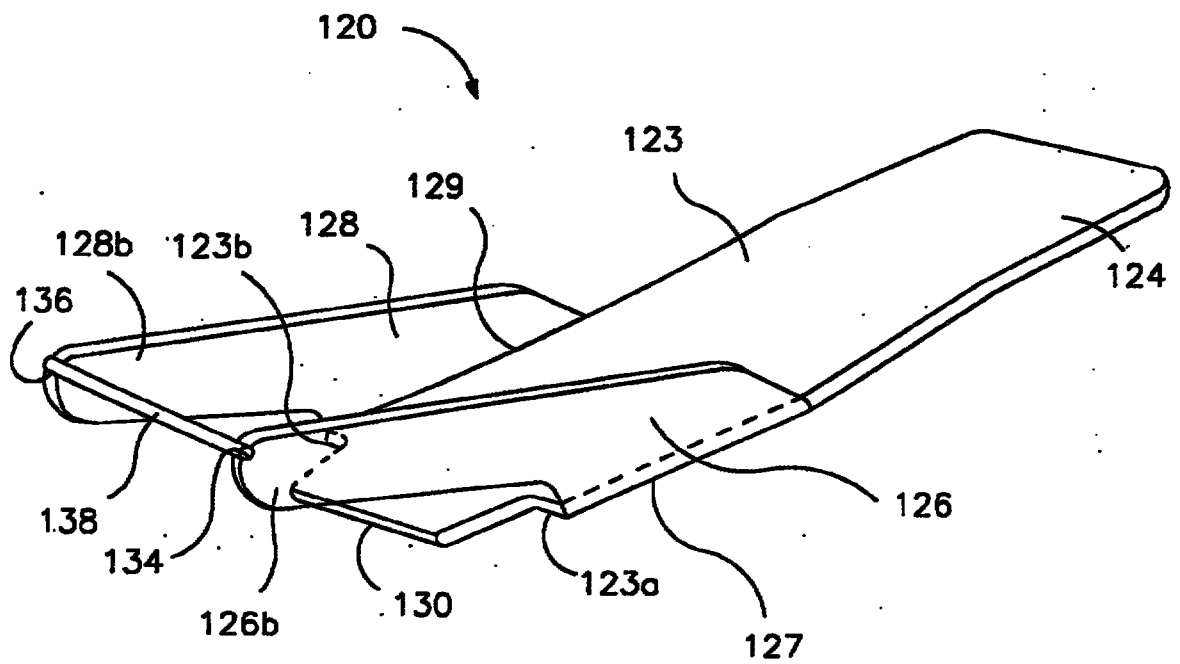
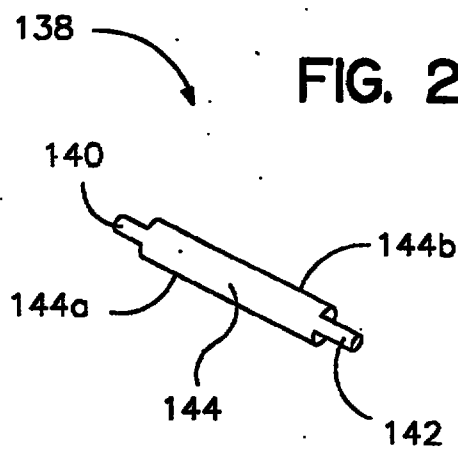


FIG. 21



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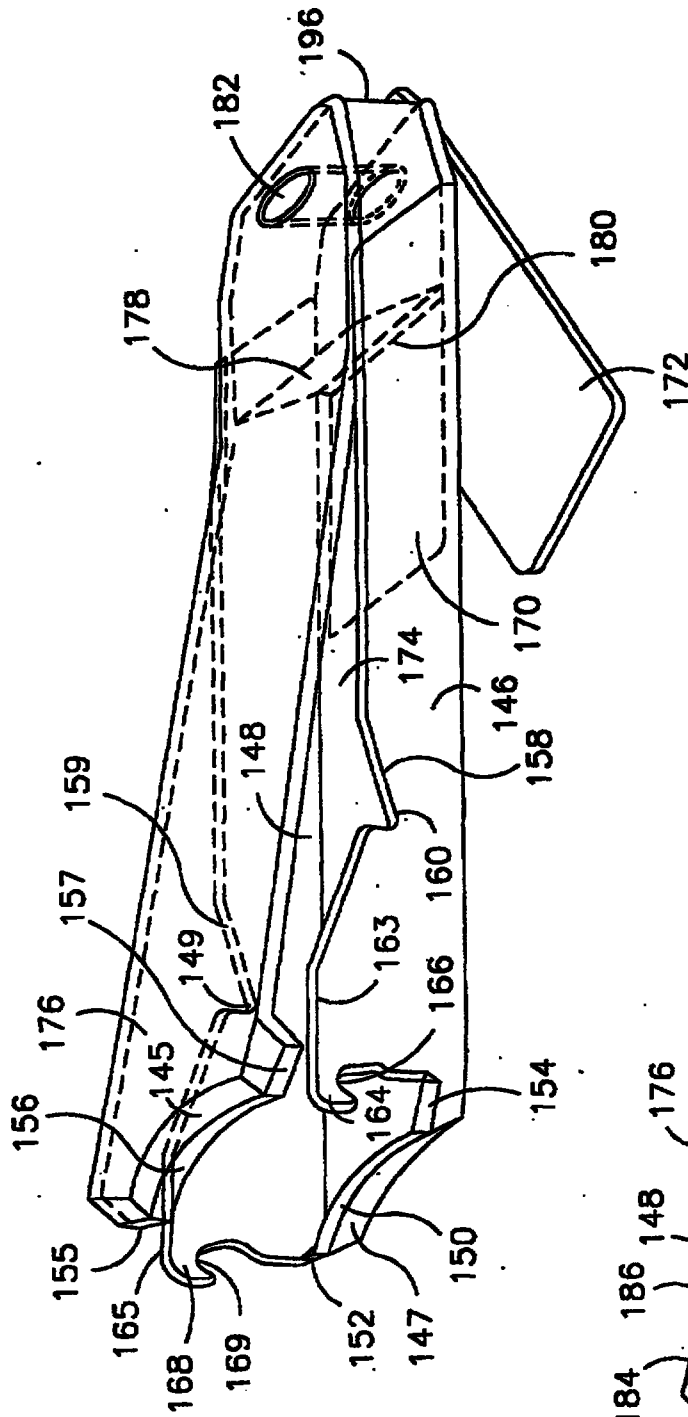


FIG. 22

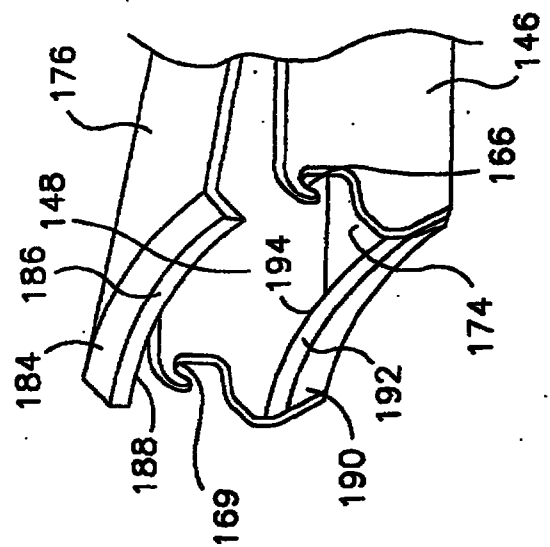


FIG. 23



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CLAIMS

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☐ Drawing(s)	: paged to paged
☐ Claim(s)	: paged to paged
☐ Description	: paged to paged
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1. A finger/toe nail clipper assembly having elongate upper and lower arms (14,2;176,178) arranged in spaced generally horizontal overlying arrangement; the upper arm (14;176) having limited resilience; the arms each having first ends (8) secured together and opposite second ends terminating in facing jaw formations (14a,2a; 145,147); the jaw formations terminating in blade sections (32,34;156,150) having sharpened cutting edges; generally vertical side walls (4,6;146,148) formed along the opposite longitudinal edges of the lower arm along the length thereof and the blade sections of the jaw formations defining an entrance for receiving the finger/toe nail introduced therebetween; aligned passages (46;166,168) formed in the vertical side walls at a location proximate the jaw formations and an actuating lever (16;120) associated with said passages for pivotal movement selectively bearing against the upper arm for forcibly effecting engagement of said sharpened cutting edges for severing the finger/toe nail introduced therebetween; characterized in that: said actuating lever comprises a first member (52;62;138,144) placable between said side walls closely proximate to said upper arm and an elongate rotatable portion (17b,52a;60b,60d;123,126 128,138,144) extending rearward from said first member and coupled to said first member for rotation thereabout between an active condition capable of exercising force upon said upper arm effecting engagement of said sharpened edges during a cutting stage of said assembly and a passive condition incapable of exercising said force.

2. The finger/toe nail clipper assembly according to claim 1 characterized in that said blade sections include angular straight-line side blade sections (42,44;155,157; 152,154) terminating in sharpened straight-line cutting edges (42a,44a), said angular side blade sections and the

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☒ Claim(s)	: paged 19. to paged 27.
☐ Drawing(s)	: paged to paged
☐ Abstract	: paged to paged
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sharpened edges thereof facing respectively inward, downward and engaging the adjacent side walls defining an unobstructed entrance to the interior of said assembly accommodating therethrough finger/toe nails of varied length and defining an enclosed interior chamber (24) for receiving the resulting nail clippings therefrom during the cutting stage of said assembly.

3. The finger/toe nail clipper assembly according to claims 1 or 2 characterized in that said first member is a stationary front plate (52) and said elongate rotatable portion (17), each having angled coplanar portions (17c, 52h); said having alignable bores (17d, 52f) formed therein; a bearing/fastener (18) disposed through said aligned bores enabling selective rotation of said elongate rotatable portion (17).

4. The finger/toe nail clipper assembly according to claims 1 or 2 characterized in that said first member is an angled mounting plate (52a) seatable upon the upper arm, said mounting plate including a front portion (52) having a unitary angular arm (52h) defining a canted surface, said elongate rotatable portion (17) having a unitary bend (17c) extending at an angle complementary to said canted surface of said unitary angular arm (52h) and terminating in a grasping portion (17b), a bearing/fastener (18) coupling said unitary angular arm and said unitary bend with said canted surfaces engaged in parallel planes surface to surface enabling said elongate rotatable portion (17) to assume a position extending away from said upper arm in the active condition and assume an inactive condition with said grasping end thereof being closely proximate said upper arm.

REPLACEMENT SHEET

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5. The finger/toe nail clipper assembly according to claims 1 or 2 characterized in that said passages comprise aligned elongate parallel closed ended slots (74) and said first member 62 having an axial passage (80) and opposite edge portions selectively disposable within said elongate closed ended slots, vertically oriented ears (64,76) carried by said first member (62) and located adjacent said axial passage, said ears (64,76) having aligned bores (66,60c), said elongate rotatable member (60) including a base (60b) and an elongate outwardly extending lever portion (60d) having a terminal end (60e), said base (60b) having opposite pins (67) disposed within said aligned bores (66,60b) thereby pivotally securing said base to said first member (62), said first member being placable between said side walls (4,6) with said base (60b) disposed above said upper arm proximate thereto and capable of engagement therewith, said elongate lever portion capable of at least 180 degree rotation carrying said first member (62) therealong with at least a pair of the opposite edges thereof being rideable within said closed ended slots and said first member positioned over said upper arm for applying force to said upper arm upon manipulation of said elongate rotatable member and the lever portion thereof toward said upper arm forcing the sharpened edges of said blade sections into severing engagement with a finger/toe nail introduced between said jaw formations.
6. The finger/toe nail clipper assembly according to claims 1 or 2 characterized in that said actuating lever (120) comprises an elongate bar section (123), side wings 126,128 and a crossbar (138) having opposite ends (140,142), said elongate bar section having a grasping end (124), longitudinal edges (127,129), and a heel formation (130) formed at the opposite end thereof, said side wings (126,128) are parallel and slope upwardly vertically from portions of the longitudinal edges of said elongate bar

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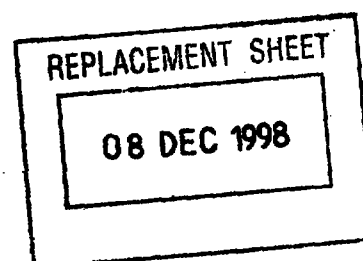
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section (123), said side walls (146,148) having aligned sockets (166,169) formed therein at a location proximate said jaw formations (145,147), said side wings (126,128) terminating in mounting ends (126b,128b), said mounting ends (126b,128b) terminating in aligned slots (134,136), said ends (140,142) of said crossbar (138) being seated within said aligned slots (134,136), said slots (134,136) adapted for alignment with said sockets (166,169) and said crossbar ends (140,142) being receivable within said sockets (166,169) with said actuating lever capable of being rotatably disposed above said upper arm during the active condition and below said assembly during the inactive condition thereof.

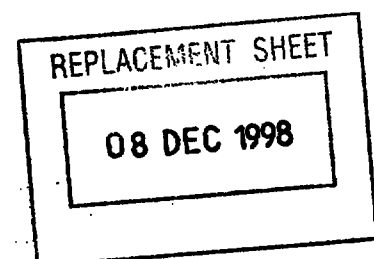
7. In a finger/toe nail clipper assembly of the type including elongate upper and lower arms, superposed facing jaw formations formed at one end of each arm, the jaw formations terminating in sharpened blade formations having sharpened cutting edges, at least one of said arms having vertical side walls unitary therewith along the longitudinal edges thereof, an actuating lever having a heel formation arranged in bearing relationship with said upper arm forcably to effect clipping engagement of the sharpened cutting edges with a finger/toe nail introduced therebetween, said actuating lever mounted for pivotal movement to said side walls proximate said jaw formation and passages formed in said side walls for mounting said actuating lever; characterized in that:

said actuating lever is formed as an elongate bar (123) having a grasping end (124) and an opposite end carrying a formation capable of effecting said bearing relationship with said upper arm (178)), a pair of parallel side wings (126,128) formed along the longitudinal edges (127) of said elongate bar at a location spaced from said opposite end and extending



parallel one relative the other and vertically parallel upwardly of said opposite end defining terminal portions (126b,128b), a crossbar 138 having ends (140,142) secured to said terminal portions bridging same, said ends passing through the passages (136,134) for rotation therewithin between an operating condition and a passive condition whereat said elongate bar (144) of said actuating lever is disposed beneath said lower arm (174) with said side wings (126,128) engaged against the exterior surface of said side walls.

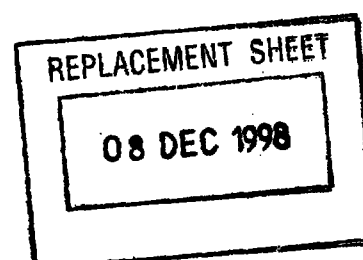
8. The finger/toe nail clipper assembly according to claim 6 characterized by a disposal hatch (12,170) for disposing severed finger/toe nail clippings from the interior of said assembly, said disposal hatch comprising an elongate longitudinal disposal opening (2c,170) formed in one of said upper and lower arms opening to the interior of said assembly and an elongate cover plate (72) pivotally secured to the opposite surface of said one arm proximate the disposal opening for sidewise swingable horizontal movement between a position for gaining access to the interior of said assembly and a position covering said opening.
9. An actuating lever for use with a finger/toe nail clipper assembly or the type which includes elongate upper and lower arms (14,2;176,178) arranged spaced in overlying arrangement and having first and second ends (8), the second ends terminating in facing jaw formations (14a,2a;145,147) having blade sections (32,34;156,150), the blade sections terminating in sharpened cutting edges, said upper arm (14) being of limited resilience and capable of being forcibly pressed toward the lower arm





(2,178) to place the sharpened cutting edges in cutting engagement with a finger/toe nail introduced therebetween; said actuating lever (16) characterized by a mounting plate (52,62) seatable over the upper arm at a location proximate the jaw formation thereof and an elongate rotatable portion 17 having a grasping end and an opposite end; said mounting plate (52,62;138,144) including a front section having a unitary angular arm (52h) defining a canted surface and a leading edge (52c) opposite said

front section, said opposite end (17b) of said elongate rotatable portion (17), said opposite end (17a) of said elongate rotatable portion (17) having a unitary angular bend (17c) defining a canted surface complementary to said angular surface of said unitary angular arm (52h), said unitary angular arm and said unitary angular bend having aligned bores (52f,17d) respectively formed therein; a bearing/fastener (18) passing through said aligned bores coupling said unitary angular arm and said unitary angular bend in respective substantially canted surface to canted surface arrangement enabling said elongate rotatable portion (16) to rotate relative to said unitary angular arm between an active condition directed divergently of said upper arm and a passive condition directed inverted from its active condition with the grasping end of said elongate rotatable portion closely proximate said upper arm, said front section (52) having portions (51e,52b) pivotally mounting said actuating lever to the finger/toe nail clipper assembly.





10. An actuating lever for use with a finger/toe clipper assembly of the type which includes elongate upper and lower arms (14,2) arranged in overlying horizontally spaced planes; the arms each having first ends and opposite second ends, the first ends terminating in facing jaw formations (14a,2a) each terminating in sharpened cutting edges; the upper arm having limited resilience, generally vertical side walls (4,6) formed along the longitudinal edges of lower arm, passages (74) formed in said side walls at a location proximate said jaw formations, an actuating lever (30) mounted in said passages for pivotal movement; the improvement characterized in that said passages are formed as parallel elongate closed ended slots (74), said actuating lever characterized by a planar disc member (62) having diametrically opposite edge portions and an axial opening (82); vertically oriented ears (64,76) carried by said planar disc member located adjacent said axial opening; said ears having aligned bores (60c); a base (60b) and an elongate outwardly extending portion (60) unitary therewith; said base seated within said axial opening between said ears and pivotally secured to the said planar disc member; said planar disc member being placable over said upper arm between said side walls and being capable of 360 degrees rotation with said diametrically opposite edge portions arranged to ride within said elongate closed-ended slots.

REPLACEMENT SHEET

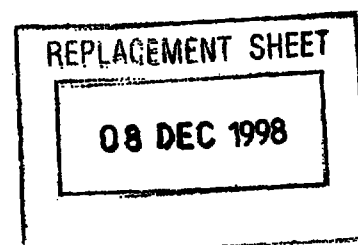
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11. The actuating lever according to claim 10 in which said planar disc member (62) is oval in perimetric configuration with a long axis and a comparably shorter axis; said planar disc member being positionable over the upper arm (14) with the long axis parallel lengthwise to the upper arm and capable of being rotated from a position with the long axis lengthwise along the upper arm to a position with the axial edge portions along the longer axis are disposed within said elongate closed ended slots (74) slots and the axial edge portions along the shorter axis are along a line taken lengthwise along the upper arm.

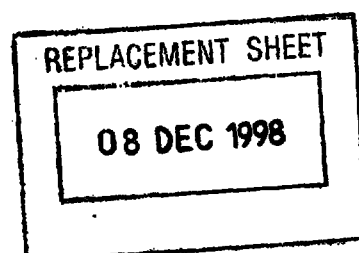
12. The actuating lever according to claim 10 characterized in that said planar member (62) is capable of rotating a further 180 degrees whereat said elongate lever portion is disengagable from the upper arm of said clipper assembly by lifting the elongate outwardly extending portion 60 and the base thereof and being re-engagable thereon by inverting said elongate outwardly extending portion 60 thereby to assume a disposition parallel to said upper arm whereby assuming a passive condition.

13. An actuating lever for use with a finger/toe nail clipper assembly of the type including elongate upper and lower arms, the upper arm having limited resilience, each arm having first and second ends, the first ends being secured together in overlying spaced generally horizontal planes, facing jaw formations formed at the second ends and having blade sections terminating in sharpened cutting edges, at least one of said upper and lower arms being capable of being forcibly pressed toward the other arm to place the cutting edges in severing engagement with a finger/toe nail introduced therebetween for severing said finger/toe nail; said actuating lever characterized by an





elongate bar (123) having a grasping end (124) and an opposite end having a leading heel formation (130) placable in bearing relationship with the upper arm (174) at a location proximate the jaw formation (145,147) thereof, said elongate bar having a pair of side wings (126,128) formed along the longitudinal edges thereof unitary therewith at a location spaced from the ends thereof, said side wings being parallel one relative to the other and extend vertically angularly outward forwardly of the second end of said elongate bar to define aligned terminal portions (126b,128b), a crossbar (138) having opposite ends (140,142) arranged bridging said terminal portions and secured thereto, said crossbar having an elongate middle section (144), said middle section having a pair of opposite longitudinal edge portions (144a,144b), one edge portion (144a) capable of engaging the upper arm when said actuating lever assumes its operative condition effecting resistance against unintentional rotation therefrom, said other longitudinal edge portion (144b) engaging the upper arm when said actuating lever (120) is in passive condition for preventing unintentional rotation thereof from the passive condition with the heel formation engaged with the undersurface of the lower arm.



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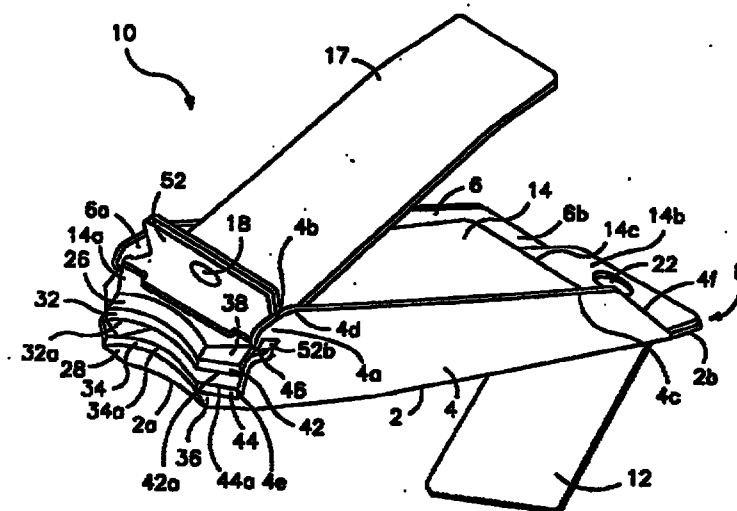
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(21) International Application Number: PCT/US95/16935 (22) International Filing Date: 27 December 1995 (27.12.95) (30) Priority Data: 08/488,925 9 June 1995 (09.06.95) ✓ US 08/498,804 6 July 1995 (06.07.95) US (71)(72) Applicant and Inventor: LEE, Hee, Un [US/US]; 9237 Austin, Morton Grove, IL 60023 (US). ✓ (74) Agent: FOX, Sidney, N.; Suite 260, 555 Skokie Boulevard, Northbrook, IL 60062 (US).	(81) Designated States: AU, CA, JP, KR, MX, NO, SG, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report. With amended claims and statement.	

(54) Title: FINGER/TOE NAIL CLIPPER AND CATCHER



(57) Abstract

A finger/toe nail clipper and catcher device including overlying spaced upper and lower elongate arms (14, 2), secured at one end and the opposite ends terminating in facing jaw formations (14a, 2a). The jaw formations include blade sections (32, 34) and angular side blade sections. The lower arm (2) has vertical side-walls (4, 6) unitary with the longitudinal edges thereof shielding the otherwise open sides of the device. An actuating lever (16) is formed of a stationary front plate (52) which has side projections (52b) and (52c) and a rotatable portion (17) which carries a heel formation (17e), the side projections (52c, 52b) being mountable within passages (46) formed in the side-walls adjacent the jaw formations selectively to cause the heel formation to bear upon the upper arm (14) placing the cutting edges in engagement, the lever (16) being pivotable between the active and inactive conditions of the device (10).